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SUMMARIES OF REPORTS SUBMITTED BY AFFECTED ASIAN COUNTRY PARTIES

Addendum

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BAHRAIN

Concerning the water crisis in arid and semi-arid areas, Bahrain has been tenaciously following the strategy of preserving its water resources on the one hand, while maintaining the greenery over most of the area on the other. The adverse agro-climatic conditions and soils of the country motivated the Government of Bahrain to see into the challenge of growing fauna and flora on the lands available. The socio-economic factors though have taken their toll, yet the government policies within the framework of the region have been conducive to combating desertification.

Following the National Action Plan 1992, Bahrain acceded to the United Nations Convention to Combat Desertification in 1997. The ground work was thus prepared as a direction to follow.

Located in the equatorial region and having a hot and humid climate, Bahrain has a comparatively high population density with a growth rate of 3.6 per cent per year. A high evaporation rate of 2,600 mm/year and scanty rain of 72 mm/year, together with sandy soils containing negligible organic matter, restricts the growth of natural vegetation.

Besides, the deteriorating piezometric levels of groundwater with increasing salinity from 3,400 PPM to 11,000 PPM lead to a formidable water crisis. Rapid salinization of soils and the shift of rural population to urban industrial growth of the oil boom of the 1970s prompted the Government of Bahrain to look for alternative sources of irrigation water, manoeuvring of agricultural land and improvement of the environment.

The economic policy and development plans have called for diversification of the production base away from oil and the promotion of the private sector. To overcome constraints in the current level of agricultural activities, the guiding Strategy for Conserving Agricultural Areas and Combating Desertification, aims at two dimensional approaches: (a) to reduce groundwater abstraction from natural aquifers and (b) to preserve the existing agricultural land and the landscaping.

In order to implement the two approaches, Bahrain, in spite of limited financial sources, has attempted to implement several measures through formulating legislation, improving irrigation methods, replacing high-irrigation requirement crops with others, introducing tariffs for using underground water, using the TSE (treated sewage effluent) for irrigation, constructing land drainage, zoning of agricultural land, improving agricultural research activities, enhancing agricultural extension services and supporting agricultural inputs by limited levels of subsidies.

Legislation to strictly monitor the use of groundwater and the drilling of wells is in place with effect from 1997. Besides, the Amiri Decrees in respect of organizing date palm protection and land drainage system are effective to protect the state infrastructure to combat the menace of shrinking agricultural land.

Modern irrigation methods like drip and sprinkler irrigation are willingly followed to replace the traditional methods of flood and unlined channels. It

is expected that about 13 million m^3/year of groundwater will be saved in this manner.

The plantation of the high-water consuming crop of alfalfa is being discouraged and is being replaced gradually by xerophytic crops like Rhodes grass, barley, oats, rye grass, Sudan grass, and others. It is estimated that this replacement will save more than 15 million m^3/year of invaluable water.

One of the main reasons for over-irrigation practices in agriculture and landscaping is the availability of underground water free of charge. This conservative method has resulted in very high proportional use of water as compared with other countries facing similar situations. Imposing a nominal charge per cubic metre would help prevent further deterioration of groundwater and would save more than 17 million m^3/year.

Realizing the importance of recycled water in agriculture, Bahrain implemented Phase-I of utilizing the treated sewage effluent (TSE) in 1984. About 660 ha of agricultural area has already been rehabilitated using 35,000 m^3/day of the TSE.

Phase-II has been initiated in 1997 and is on its way to implementation. A network of expanded treatment plants, storage reservoirs, transmission lines, a network of irrigation distribution lines, 150 km in length, up to the irrigation well on each farm, as well as to landscaped areas for beautification and afforestation are salient feature of the scheme.

The network will be completed within the next three years, and the production of TSE will reach 200,000 m^3/day in the year 2011. This will irrigate more than 2400 ha of water-thirsty agricultural land. TSE Phase-II is estimated at about BD 55.4 million (US$146.6 million). A saving of 50 million m^3/year of groundwater will result from the project.

A well-planned drainage system is a pre-requisite to maintaining the sustainable agriculture. Bahrain, being no exception, is implementing a drainage network under Amiri Decree No (4) which governs the organization and maintenance of the land drainage system intact. A total of 120 km of drains will be constructed under TSE Phase-II.

In order to protect agricultural land from urban encroachment, the zoning of agricultural land has been undertaken. The Amiri Decree No. 29/83 to protect the date palms in the country aims to preserve the heritage of natural resources and the environment. Zoning of agricultural land would lead to a symbiosis of rural and urban communities to flourish together.

Agricultural research, agricultural extension and supporting the agricultural inputs through limited subsidies are Bahrain's contribution as part of its efforts to combat desertification. However, there are certain requirements which need to be looked into.

Bahrain's agriculture contributes about 1 per cent to the GDP. Although its resources are limited, nevertheless Bahrain has built a solid infrastructure for agriculture, especially in irrigation and drainage. The TSE Phase-II is costing US$146.6 million. In order to further strengthen the activities to combat desertification, however, technical as well as financial supports are

needed. They are to be assessed in light of requirements with a view to rehabilitate agricultural land activities.

The Ministry of Works and Agriculture is prepared to form a National Committee from the concerned organizations in Bahrain and to implement the valuable findings and recommendations by the United Nations Convention to Combat Desertification.

BANGLADESH

Bangladesh is a South Asian developing country located between 20°34' to 26°38' North latitude and 88°01' to 92°42' East longitude with an area of 147,570 sq. km. and a population of 125 million with very low per capita gross domestic product, i.e. 241 dollars. (BBS, 1996). Geologically, it is a part of the Bengal Basin filled by sediments washed down from the highlands on three sides of it, and especially from the Himalayas, where the slopes are steeper and the rocks less consolidated. It is bordered on the West, North and East by India, on the South-East by Myanmar and on the South by the Bay of Bengal.

An understanding of the physical environment of Bangladesh is essential for the appraisal of the country's land degradation and aridity problems. The climate is sub-tropical, warm and humid in the summer, dry and cool in the winter. The summer is the hottest period with the maximum temperature exceeding 40 degrees Celsius and is characterized by Nor'westers (thunderstorms) as well as a high evaporation rate. The temperature in Bangladesh varies between 10 to 40 degrees Celsius. It peaks during April and the minimum is recorded in January. The North Western region in Bangladesh is the driest part where rainfall is the lowest, experiencing aridity and drought conditions.

Bangladesh is a signatory of the United Nations Convention to Combat Desertification (UNCCD). It was signed in January 1996, and after ratifying, the country became a Party to it. The Convention came into force in 1997. In the Convention, desertification is defined as the degradation of land in arid, semi-arid and dry, sub-humid areas primarily caused by human activities and climatic variation. Desertification occurs because dryland ecosystems are vulnerable to over exploitation and inappropriate land-use, which is a concern to half of the territory of Bangladesh and justifies and validates the country to take part in UNCCD.

Among the many environmental issues facing Bangladesh, land degradation due to aridity and the loss of crops due to drought may have caused more human suffering than any other problem in the concerned areas. Drought-prone areas make up almost one third of Bangladesh, particularly the North-Western part. The boundaries of these areas are delineated by low and highly variable annual rainfall. The evaporation rate in most of those areas is higher for more than seven months than the precipitation rate. The extraction of groundwater for irrigation purposes is not adequately recharged. Consequently, aquifer levels of the groundwater is going down. UNDP, under the Sustainable Environment Management Programme, is supporting the Ministry of Environment and Forest to implement one of the projects devoted to sustainable management of dry land in the Barind Tract which is one of the driest areas.

A major cause of land degradation in Bangladesh is overexploitation of biomass from the cultivated field. This phenomenon is evident in the Barind and

Madhupur Tracts, as well as the northern piedmont plains. The consequence is accelerated water and wind erosion of the topsoil. An ancillary aspect of biomass exploitation is large-scale deforestation in these areas, primarily for fuel and timber needs. The impacts of forest destruction include deterioration in vegetation cover and soil moisture contents, and potential decline in soil fertility due to nutrient losses. Shifting cultivation in the southeastern hills is another wasteful agricultural practice causing land degradation through excessive runoff and accelerated soil erosion and mass wasting. The use of pesticides and other agrochemicals is another causative factor for land degradation through contamination of soil in the long run. Degradation of land in several parts of Bangladesh, especially in the North-West, is largely the result of direct human intervention. The Barind Tract - once rich with vegetation cover - is now showing symptoms of desertification in the board of the term, and is in urgent need for effective policies to combat the process (Rasheed, 1998).

As a signatory of the Convention, preparation and implementation of the National Action Program (NAP) is an obligation of the country to address the concerned problems. The Ministry of Environment and Forest had taken priority action and organized a National Awareness Seminar on "Combating Land Degradation and Desertification" in 1998 with assistance from UNCCD. This has created the opportunity of public awareness, ensuring inter-sectoral discussion at public, private and civil society level on issues and consequences of land degradation, drought, aridity and desertification. As a follow-up to this event, Government, universities and NGOs came up with action research programmes. In particular, it is worthy to mention Barind Multipurpose Development Authority (BMDA), a Government agency devoted to carrying out huge programmes to combat aridity and desertification in the North-Western part of Bangladesh. The National Environment Management Action Plan (NEMAP) follow-up action toward combating desertification is another initiative to this end. In this regard it is also significant to note that the International University of Business and Technology submitted a proposal for UNDP-GEF funding for "Reversing Desertification in the Barind Tract of Bangladesh through Integrated Ecosystem and Resource Management" which is actively under consideration.

Following the Environment Policy 1992, the Government established a broad-based National Environment Committee (NEC), chaired by the Hon. Prime Minister, along with a corresponding Executive Committee chaired by the Hon. Minister for Ministry of Environment and Forest. The National Environment Committee consists of 59 members from all line Ministries, Departments, Chambers, Journalists, Professionals, NGOs and civil society bodies. According to its terms of reference, the National Environment Committee has the following responsibilities:

- to review the progress of activities towards implementing the National Environment Policy, which includes land degradation and desertification issues;

- to consider implementation of the decisions taken at the United Nations Conference on Environment and Development (UNCED) in 1992;

- to identify inter-ministerial problems in respect of the National Environment Policy and recommended remedial options;

• Bangladesh has signed, ratified or accessed to 22 international Conventions, Treaties and Protocols related to the environment, climate change, biodiversity, phase-out of ozone, hazardous waste and combat desertification and so on. The Bangladesh National Environment Committee and National Executive Committee of National Environment Committee are responsible to overview the progress of the implementation and provide remedial options, as well as policy directions.

The Ministry of Environment and Forest is designated by the Government of Bangladesh to work as the National Focal Point for UNCCD. The Government is also actively considering formation of a National Coordination Body, as well as a National Steering Body, to fulfill the requirement of the UNCCD, which has also been endorsed in the National Awareness Seminar on "Combating Land Degradation and Desertification" held in Dhaka in 1998.

The Government of Bangladesh is supporting a number of programmes and projects to address environmental degradation and natural resource management, particularly though stakeholders participation. The Ministry of Environment and Forest is implementing the Sustainable Environment Management Programme (SEMP), which is a follow-up implementation of NEMAP. SEMP is the largest environmental program of UNDP at a global scale with a grant of US$26 million. It has 26 components under five subprogrammes such as Policy, legislation and Institutions, Participatory Ecosystem Management, Community Based Environmental Sanitation, Awareness and Advocacy and Training and Education to mainstream the environment in collaboration with 17 line Ministries, 15 National NGOs and three international organizations, including IUCN and the World Bank.

One of the SEMP components devoted to addressing the issue of dryland ecosystems under "Ecosystem Management in Barind Areas" focuses on reversing aridity and enhancement of dryland ecology with an approach of participatory ecosystem management leading to sustainable development of the concerned area. The objective of the project is also to demonstrate working models of improvements in dryland ecosystems with improved water management and regeneration of indigenous flora and fauna through community participation in the vast tract of the Barind Region.

Along with environmental documentation and awareness components, SEMP has one component for "Sustainable Development Networking Programme (SDNP)" to disseminate the message and information to the hundreds of institutions and civil society, as well as public institutions involved in development work. SDNP will also develop national capacity-building to advance the cause of environmental as well as human resources development in the concerned area at government, business communities, NGOs and civil society level.

Since the Department of Environment (DoE) is the implementing organ of the Ministry of Environment and Forest and responsible for carrying out the mandates of the UNCCD, it is important to note the capacity-building issues of the Department. The Bangladesh Environment Management Project (BEMP), with the financial support from CIDA, is now under implementation with the objective of strengthening the capacity of the Department of Environment for accomplishing institutional planning to enable DoE to fulfill its legislated mandates inclusive of GoB and donor projects. It will also improve DoEs infrastructure capability to formulate environmental regulatory instruments and will help implement their procedural and enforcement applications. Such implementation

will include necessary legal inputs for dissemination of the substantive, legal implications of these instruments to the relevant parties. The project is also developing an environmental database and information system on various aspects of the environment and management practices which could be used to address the requirements of UNCCD, amongst others.

In the back drop of the issues and concerns discussed, it is important to detect the problem and to carry out intensive monitoring and assessment of the aridity and desertification process in the region concerned. Therefore, baseline and monitoring of degradation/desertification is needed, which is again a very difficult and complex task. A sufficient number of monitoring stations could be set up in order to provide adequate spatial coverage of the vulnerable area. Remote sensing imagery can be used to assess plant cover and biomass with proper ground truthing. A multidisciplinary team of experts from various scientific, government and non-government organizations working in the field of land degradation, drought and desertification already exists but the Government is planning to coordinate all the efforts under the UNCCD initiative.

CAMBODIA

I. Major Ecosystems of Cambodia

The natural ecosystems of Cambodia consist of tropical forests, rivers, lakes, and coastal areas. Man has influenced these natural ecosystems over thousands of years. Forests has been cleared to create Rice Growing Land, thereby giving rise to rice ecosystems. The movement of humans to live in cities, towns and villages is known as urbanization. These towns and cities can be described as urban ecosystems.

1.1 Rice Ecosystems of Cambodia

The rice ecosystems are among the most important terrestrial ecosystems to the Cambodian population in terms of food security. As in any other ecosystem, there are living and non-living components and rice is undoubtedly the most important living component of the ecosystem.

- Rainfed lowland rice or wet season rice
- Deepwater or floating rice
- Rainfed upland rice or Chamkar rice
- Dry season irrigated rice

1.2 Wetlands

The majority of Cambodia's freshwater wetlands are found around the Tonle Sap Lake and along the Mekong River and its tributaries. They comprise the Tonle Sap Lake, other permanent lakes and swamps, and annually inundated flood plains. The total wetlands area increases nearly ten-fold from about 0.5 million ha in the dry season to 5 million ha in the wet season (July-September) in an average year. The Tonle Sap Lake alone increases four-fold in an area from 250,000 ha in the dry season to about 1,000,000 ha in an average year, and to about 1,350,000 ha in a wet (heavy rained) year. The surface of the lake was reported to have from 2,700 km^2 during the dry season to approximately 16,000 km^2 at the maximum level of flooding, and the water level

depths vary between 1m in the dry season to 9m in the wet season (Guiscafre, 1963).

1.3 Rivers and Lakes

Mekong River - Tonle Sap system dominates the hydrology of Cambodia. The Mekong River rises in the Tanghla Shan Mountains in the Tibetan Plateau and flows through Myanmar, Laos, Thailand, Cambodia and Vietnam. A further 10-20 per cent from the Sesan, Srepok and Sekong in North-Eastern Cambodia and the remaining 10 per cent from the rivers that drain Cambodia into the Tonle Sap Lake (Pantulu, 1986). Eighty-six per cent of the land of Cambodia lies within the catchment of the Mekong River.

II. The Status of Land and its Changes

Human activities are continuously changing and affecting land and the landscape. In this context, the rapidly increasing world population has placed great demands on the available living space in many countries. In Cambodia, business interests takes precedence over small-scale farmers, forcing many subsistence farmers to give up their land to be replaced by industries or commercial farms which require skilled or semi-skilled workers.

2.1 Land Usage and Fertilizer Use

2.1.1 Land Usage

The cultivated area, 21 per cent, is mainly concentrated in the lowland around the Tonle Sap Lake and in the south of the country, on the north side of the Mekong River. The Uplands crop/fruit garden occurs especially along the banks of the main rivers.

The main constraints rely to soils in crop production in Cambodia are:

- The lost of soil fertility in cultivated areas cause from poor soils management and cultural practices;
- Devastation and its erosion cause from the process of deforestation and shifting cultivation of ethnic groups in uplands slope;
- Drought and flood cause to soil degradation and erosion;
- High concentration of acidity and/or salinity in some dry season rice production areas;
- Large change fluctuation of environment as increase big gape of temperature cause to soil moisture content and soil fertility;
- Farmers have a very limited input to improve soil fertility;
- Low literacy cause the constraints to adopt the new modern technology to improve soil fertility;
- Unavailability of credit in rural areas to purchase fertilizers;

- Poor fertilizer application and use cause the destruction in soil structures and soil texture.

2.1.2 Fertilizer Use

Fertilizer application, together with modern varieties, irrigation and other improved management practices has been driving the growth in food production in South-East Asia over the past 25 years. Fertilizer use in Cambodia, however, has been very small as compared to the other countries in the region. Cambodia farmers applied between zero and 8,000 tons of organic fertilizers (NPK) per annum in the period 1965 to 1990, but with upwards of 40,000 tons per year had been applied for the last two years (FAO unpublished data).

2.2 The Change in Areas of Rice Field Ecosystems

The main causes for rice ecosystems changes are observed to be from basic factors: warfare, population growth, poverty, security issues and development trends. It is basically ascertained that economic development, mainly in the agriculture sectors, has been much more intensified during last decade, controversy sometimes to the wise use concepts or sustainable development (for example: rice fields expansion, over-fishing, over-grazing).

2.3 The Conflict Uses of Areas

There have been presently conflicting uses of rice fields, as due to various development practices:

- Agricultural developments: rice and other crops harvesting (traditionally) and rice-fish farming;

- Industrial development: many rice fields have been filled for constructions of factories, manufactures and handicrafts, building of many new settlements and other as well;

- Other building and infrastructures.

2.4 The Impact Assessment Towards Human Activities

In Cambodia the major root causes of soil erosion are deforestation, poor agricultural activities (shifting cultivation) and gemstone mining activity in the border area between Cambodia and Thailand. High erosion has taken place at the North-East mountain ranges and high plateau along main tributaries of the Mekong River, and at the North-West high plateau, where sediment flows into the Tonle Sap Lake.

2.5 Land Issues in Cambodia

One of the major concerns regarding public land in Cambodia is the number of leases and concessions that have been made in recent years. Problems to the granting of these leases and concessions include:

- a lack of policy framework and accurate information to guide land use allocation;

- selling of national assets for very low prices to businessmen and foreign investors;

- the commitment on the development of agricultural crops in the land concession areas not been done by many investors and/or stakeholders from both local and external.

The suggestion for optimizing use of Cambodia's land resources include:

- incorporate social, environmental and economic costs when considering the benefits of any land development;

- consider the public assets for future generations needs;

- introduce and implement measures to protect soil and water resources (to prevent floods, ensure safe water supply, and protect farm production);

- ensure capability of land-use allocation with local communities who use or need access to the same piece of land.

III. The Socio-Economic Impacts

However, today's Cambodia not only can not provide rice to the external market, but also does not produce enough rice for local consumption too. For the question of why Cambodia faces a food shortage? The answer is for many reasons: the large population growth, while the agriculture land is continued to decrease has long been a major driving growth in demand. The chronic continuation of civil war, which is leading to the massive destruction of economic and social infrastructures, but the more predominant of its was the drastic changes in natural conditions, in which farmers could not adapt to its changes.

IV. The Implementation of the National Policy on the Implementation of the UNCCD (Legal, Institutional and Management Aspects)

4.1 Legal Aspects

The constitution of the Kingdom was adopted in September 1993. And over two dozen laws have been adopted since 1993, including the land management, urbanization and construction law, and the laws establishing the rights and responsibilities of various ministries. There are many other laws that are still awaiting execution by Parliament.

4.1.1 Existing Legislation Related to Environmental Management

A- Pre - 1993 Laws:

B- Post - 1993 Laws:

- Law of Land Management, Urbanization Planning and Construction;

- Law on Environmental Protection and Natural Resource Management;
- Sub-Decree on Construction Permission;
- Royal Decree on Creation and Designation of Protected Areas.

Ratification of International Conventions

Forestry Law

This law is being prepared by the National Commission on Forestry Policy Preparation and Reform, Ministry of Agriculture, Forestry and Fisheries (Department of Forestry and Wildlife), and will be submitted to the National Assembly by the end of 2000.

Mining Law, Petroleum Exploration Law and Factories Law

These laws were submitted to the council of Ministers for reviewing and will be adopted by the Government this year and then it will be submitted to the National Assembly.

4.2 Institutional Agency

The Government agencies responsible for water resource management are the following:

1. Ministry of Agriculture, Fishery and Forestry;
2. Ministry of Environment;
3. Ministry of Rural Development;
4. Ministry of Land Management, Urbanization Planning and Construction;
5. Ministry of Water Resource and Meteorology; and
6. Other Institutions concerned.

V. The Strategic Policy on the Implementation of the UNCCD

5.1 The Mitigation of Drought and Flood

The Kingdom of Cambodia is fully depending on the Agricultural Sector, and its play as the main fundamental base of the development, because more than 80 per cent of the Cambodia Population are farmers. In this regard, the Royal Government of Cambodia has foreseen that the major issues of social stability in which the main work is "Water Policy" (53 projects has been launched in 13 provinces and municipalities from 1998-2006).

5.2 The Collaborative Activities with International Agencies

To reach these goals and objectives, the Ministry of Agriculture, Forestry and Fisheries pays much attention to Human Resources Development and Institutional Strengthening through Capacity Building. The improvement of Agricultural Infrastructure (irrigation and roads) that many base upon Technical Assistance, Grant Aids and/or loans from the Food and Agriculture Organization of the United Nations (FAO), the International Monetary Fund (IMF), the World Bank (WB), the Asian Development Bank (ADB), the U.S. Agency for International Development (USAID), the Australian Agency for International Development (AusAID), the Japan International Cooperation Agency (JICA), the Danish International Development Agency (DANIDA), the European Union (EU), the International Fund for Agricultural Development (IFAD), MRC-International, the United Nations Educational, Scientific and Cultural Organization (UNESCO) and other donor communities as well. For the long-run sustainable development non-paradoxically needs sustainability in natural resources management. In this context, the Law in Forest Management Reform (Forest Concession Law), Law in Community Forestry, many other as regulations and PRAKAS such as Depression of Anarchy Activities in Forestry, had and have been prepared in close technical assistance with foreign experts from the World Bank, the Asian Development Bank and many other from the international community such as FAO, GTZ, OXFAM, JICA.

5.3 Future Recommendations Policy on the Implementation of UNCCD

To achieve sustainable growth - growth consistent with the needs and constraints of nature - we need to secure the link between environmental and economic policies at all levels of Government and in all sectors of the economy. Harmonizing economic expansion with environmental protection requires a recognition that there are environmental benefits to growth. However, today's Cambod'a is not in the full capability (both technical, financial and institutional) to combat desertification, therefore, the following policy recommendations should be taken for the future:

- The more clear policy concerned should be developed;
- Immediate enforcement of the national economic (both micro- and macro-economy);
- Foster building human capital;
- Institutional Strengthening, improving the coordination between pipe line ministries;
- Build the close cooperation with: UNCCD-NETWORK, UNESCO, GEF and other international communities concerned.

FIJI

Fiji lies in the heart of the Pacific Ocean midway between the equator and the South Pole. It is an enormous archipelago with diverse landscapes and climate. The archipelago comprises over 840 islands and lies between 12° and 22° South and between longitude 175° East and 175° West. The area within these limits exceeds 650,000 km² but this 18,300 km² or less than 3 per cent is dry land.

Although Fiji's climate is described as tropical, it is not uniform across the islands due to the relief of high islands and the impact of the eastern maritime airstream - known as the South East Trades which predominates throughout eight months of the year. Seasonally, climate ranges from hot and dry to warm and wet.

Fiji's main natural resources are land, natural forests and minerals such as gold. Land is the most important natural resource as agriculture currently contributes 25 per cent of the GDP. Fiji has a total land area of 1,838,522 ha with only 594,179 ha or 29.9 per cent of the total land area which could be used for sustainable agricultural use as no modification is needed before they can be developed fully for some form of agriculture.

The Fiji economy has a very narrow base and performance and is heavily dependent on the success of the tourism and sugar industries. The sugar industry remains the largest contributor to total domestic export earnings, with sugar representing 36.7 per cent in 1996. Exports on traditional commodities such as dalo, kava and coconut oil are also growing due to increasing demand in niche markets. Forestry is also expected to grow and export earnings from this sector are expected to rise to F$100 million by the year 2000. However, agriculture remains the mainstay and the largest sector of Fiji's economy, accounting for almost 43 per cent of foreign exchange earnings. It provides nearly 50 per cent of total employment and contributes 19 per cent of Fiji's GDP.

In Fiji the Government has put in place a number of strategies that are geared towards sustainable development. These include the National Code of Logging and the National Environment Strategy.

From the outset, it must be clearly spelled out that desertification and drought are not perceived to be a priority issue for the Government. However, land degradation has become an environmental problem due to the increase in deforestation, logging, intensive sloping kind cultivation, commercial livestock farming. The consequences of these practices result in a reduction in farm income that in turn leads to increased poverty. As increased land degradation may result in desertification, the reporting done for the national report is done in the context of soil degradation.

In ratifying the UNCCD in 1998, the Fiji Government recognizes that desertification and drought are impending problems that would inevitably occur in the future if no action is taken to address the continuing problem of land degradation in rural areas.

The Ministry of Agriculture, Fisheries and Forests, through its Permanent Secretary, is the focal point for UNCCD activities, while the Land Conservation

Board (LCB) has overall responsibility in implementing soil conservation and sustainable land management activities. The Permanent Secretary for Agriculture, Fisheries and Forests is the Chairman of the Land Conservation Board.

The Land Conservation Board (LCB) works closely with the Land Use Section of the Ministry of Agriculture, Fisheries and Forests. The LCB was established under the Land Conservation and Improvement Act of 1953 to exercise general supervision over land and water resources.

Presently, the National Action Plan on Desertification has not been formulated and thus will require technical assistance from the UNCCD secretariat. However, the Ministry of Agriculture, Fisheries and Forests and the Land Conservation Board have put in place mechanisms to implement soil conservation and sustainable land management programmes. These programmes are mostly at the national level and at the subregional level where donor assistance from the International Board for Soil Research Management (IBSRAM) has been received.

To ensure that all stakeholders are involved in the formulation of soil conservation and sustainable land management programmes, participating rural appraisal technique was used to collate the views of stakeholders and agencies involved in sustainable land management. Brochures and pamphlets were also distributed to farmers' groups and schools.

As part of its ongoing programmes, the Land Conservation Board (LCB) and the Minister of Agriculture, Fisheries and Forests consults widely with other stakeholders as the Fiji Sugar Corporation and Native Land Trust Board in formulating collaborative activities on land degradation and sustainable land management. Due to a lack of financial resources, these efforts did not materialize. There is a critical need for international partners to participate and fund these activities.

Past experiences have revealed that the lack of political resolve to confront land degradation and sustainable land management issues remains a major problem. There is a general lack of interdepartmental coordination and the Government was too focused on rapid development. In addition, there was a poor awareness in Fiji of the independence of conservation and development and that institutions concerned with conservation and environmental management are weak and insufficient for Fiji's needs.

There are ongoing projects that are undertaken to combat the problem of land degradation. These include the programme on sloping land agriculture, lowland farming system project, vetiver grass hedge row planting and the agroforestry project. It is envisaged that these projects will be adopted into the National Action Plan to combat desertification.

Funding for these projects are provided by the Fiji Government with some support from donor agencies as the Australian Agency for International Development (AusAID), IBSRAM and GTZ. At the same time the Government has identified two new projects that would be implemented to combat soil degradation. However, these projects are depending on donor supports for their implementation.

Reliable information on land resources including soils, climate, vegetation and topography is needed if land conservation policies are to be developed. Some of this data is widely available in Fiji. There are also established monitoring and observation capacities such as the Fiji Land Information Council and the Forest Management Information System.

However, there is a critical need for an information system on land degradation and desertification at natural level.

INDIA

1. At the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, a Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (UNCCD) was agreed. In December 1992, The General Assembly adopted Resolution 47/188. The objective of the Convention is:

> to combat desertification and mitigate drought and/or desertification, particularly in Africa, through effective action at all levels, supported by international cooperation and partnership arrangements, in the framework of an integrated approach which is consistent with Agenda 21, with a view to contributing to the achievement of sustainable development in affected areas.

India ratified the Convention on 17 December 1996 and it came into effect on 17 March 1997.

2. In India about 107.43 m ha, or 32.75 per cent of the total geographical area is affected by various forms and degree of desertification. Particularly the arid, semi-arid and sub-humid regions, commonly called dryland, represent fragile ecosystems that are susceptible to desertification. These regions are also susceptible to frequent droughts that accelerate the process of desertification and exacerbate its impact. It is estimated that droughts occur in one or two out of five years in arid and semi-arid regions. The country is currently passing through a severe drought (called *Trikal*, meaning acute shortage of drinking water, food and fodder) which has affected 12 States - especially Gujrat, Rajasthan, Madhya Pradesh and Andhra Pradesh - close to 100 million people and 3.4 million cattle are caught in the grip of drought. The general problem of the dryland region with large populations is essentially one of human ecology. On one hand, the inherently limited water resources within the region set the ultimate limit of biomass productivity, on the other hand, erratic rainfall results in widely fluctuating production which, in turn, leads to the shortage of food particularly for the poor, imposing stress on the population. As human and animal population increase, these stresses become greater and the demand on natural resources is magnified and a process of progressive degradation of resources is set into operation.

3. Post independent India has taken a number of steps to tackle the problem of drought and the mitigation of distress caused by it. Systematic efforts through the launching of long-term countermeasures were initiated in the Second Plan (1956-61) which were substantially expanded during the Fourth Plan (1969-1974). However, the Fourth Plan suggested that much of the amount Government of India (GoI) spent on relief in famine-affected areas could be "so deployed in the areas chronically affected by drought as to generate considerable

employment in the rural sector largely related to pre-planned programmes of Rural Works." In 1970-71, the Rural Works Programme (RWP), with the objective of creating assets designed to mitigate the severity of drought where it occurred and provide employment in drought-affected areas, was formulated. The mid-term appraisal of the Fourth Plan redesignated RWP as Drought Prone Area Programme (DPAP). In spite of the resource constraint to tackle the magnitude of the problem caused by desertification and drought, GoI continued to lay emphasis on poverty alleviation programmes with a focus on development and management of renewable natural resources. Various sector and cross-sector projects and programmes related to desertification control were launched earlier on and are continuing within the framework of the Ninth Five Year Plan. Different ministries service these programmes. Some of the major ones are: Afforestation Programme, Drought Prone Area Programme (DPAP), Desert Development Programme (DDP), National Watershed Project for Rain-fed Areas (NWDPRA), Indira Gandhi Nahar (Canal) Project, Soil and Water Conservation in the Catchment of River Valley Projects, and Development of Ravine Areas. Also, steps have been taken to augment renewable energy sources by initiating programmes for tapping solar energy, by harnessing wind power and by undertaking plantation programmes with people's participation and encouraging farmers to plant trees on their fields. In addition, the National Project on Biogas Development has been undertaken to promote family type biogas plants by using cow dung. The National Programme of Improved *Chullhas* (stoves) is under implementation to improve energy conservation. In other social and economic areas, ministries such as Human Resource Development, Health, Social Welfare, etc., implement programmes having a bearing on combating desertification. These programmes are implemented on a regular basis to combat desertification.

4. Although the restoration of ecological balance continued to be the main objective of the Drought Prone Area Programme (DPAP) and the Desert Development Programme (DDP), coordination and sustained action on achieving drought-proofing and combating desertification continued to be problem areas. As a result, the direction of the programme became diluted, depending upon various factors, such as the perception of State Governments, capabilities of sectoral departments and pressures exerted by different interest groups. In the process by and large, each activity under the programmes was implemented in an isolated and segmented manner and the watershed unit of area for planning and development was completely lost sight of.

5. When drought problems are faced, Central and State Governments undertake relief measures by providing drinking water and food grains through the Public Distribution System (PDS), fodder and food subsidies to special groups, and employment through food-for-work-programme. At the Centre, the Disaster Management Division in the Ministry of Agriculture coordinates drought relief works with State Governments. The National Centre for Disaster Management (NCDM), set up in 1995, undertakes human resource development, research case studies, the building of a database, and provides information services and documentation on disaster management. Financial assistance to State Governments is provided from the Calamity Relief Fund (CRF). In the wake of the current drought, GoI has set up a Commission on Disaster Management under the Chairmanship of the Deputy Chairman, Planning Commission, to look into the entire gamut of the problem and make recommendations to streamline the system.

6. In order to provide research support to the various programmes for combating desertification, GoI has established a network of national level research institutes such as the Central Research Institute for Dryland Agriculture, Hyderabad; the Central Arid Zone Research Institute, Jodhpur; the Central Soil Salinity Research Institute, Karnal; the Central Soil and Water Conservation Research Institute, Dehra Dun; the Indian Grassland Forest Research Institute, Jhansi; the National Research Centre on Agroforestry, Jhansi; the Water Technology Centre at the Indian Agriculture Research Institute, New Delhi, under the aegis of the Indian Council of Agricultural Research (ICAR). A network of forestry research institutes under the Indian Council of Forestry Research and Education (ICFRE), Dehra Dun, is conducting research on problems related to the rehabilitation of degraded lands and increasing the productivity of forests of drylands. Besides developing technology packages, these institutes are also engaged in training field staff in different disciplines.

7. The specific schemes and research efforts are well supported by institutional, policy and legislative measures. Environmental management is accepted as a major guiding factor in the national developmental planning process. In June 1972, MoEF, in accordance with the principles 16 and 17 of Agenda 21, adopted the National Conservation Strategy and Policy Statement on Environment and Development which serves as a management guide for integrating environmental concern with development imperatives. In 1993, the draft Environment Action Programme (EAP) document was finalized. The EAP emphasizes, *inter alia*, soil and water conservation and drought proofing and the management of natural disasters. People's participation at the grass-roots, local and regional levels is also accepted as a key issue. EAP is now under comprehensive review both in Government and non-government sectors.

8. A policy framework is already in place. Important among these are: National Land Use Policy Outlines, 1986; Draft National Agriculture Policy, 1999; National Forest Policy, 1988; Draft Grazing and Livestock Policy, 1994; Draft National Policy for Common Property Resource Lands; Draft National Policy and Macro-level Action Strategy on Biodiversity, 1999; and National Policy on Population. A National Policy on Environment is under preparation. However, most of these policies have come into existence in the last few years. These do not discuss desertification per se but have important implications for combating it.

9. On the institutional side, the National Land Use and Wastelands Development Council (NLWC), established in 1985 and chaired by the Prime Minister, is the highest policy planning and coordinating agency for all issues concerning the country's land resources. NLWC oversees the work of the National Land Use and Conservation Board (NLCB), the National Wastelands Development Board (NWDB), and the National Afforestation and Eco-Development Board (NAEB). At the State level, the State Land Use Boards (SLUBs), under the Chairmanship of Chief Minister, are responsible for implementation of related Central/State schemes and programmes. The programmes at the village and block level in the States are coordinated by SLUBs. The ICAR institutes have substantially contributed towards the development of technology, imparting training and setting up demonstration projects for dryland improvement.

10. In so far as the legal and regulatory framework is concerned, Article 48A and 51 G of the Directive Principles of State Policy enjoin upon the State to protect and improve the environment and safeguard the forests and wildlife. The

Indian Forest Act 1927, Wildlife (Preservation) Act 1972 and Mines Act 1952, Forest (Conservation) Act 1980 (FCA) and Environment (Protection) Act, 1986, together have helped in the conservation and management of natural resources and the preservation and protection of the environment. For example, as a result of enforcing the provisions of FCA, the annual rate of diversion of forest lands from 150,000 ha during 1950-1980 declined to 25,000 ha during 1980-95. The last five years witnessed a further reduction in the diversion of forest lands to 15,500 ha. In addition, compensatory plantations have been raised over 530,000 ha in lieu of the diversion of forest lands.

11. Realizing the need of wider participation by local communities in the schemes and projects formulated for natural resource management in general, and for combating desertification and drought in particular, several steps have been initiated in recent years. The Constitution (Seventy-third Amendment) Act, 1992, gives constitutional status to the *Panchyati Raj* Institutions (PRIs) at Village, Block and District levels. Under the amendment a number of subjects, e.g., agriculture, land improvement, implementation of land reforms, land consolidation and soil and water conservation, water management and watershed development, animal husbandry, fuelwood, and fodder, and social forestry have been passed on to PRIs which are village level institutions. This constitutional amendment also promotes gender equality even in the political sphere as it reserves one-third of elected seats for women in all PRIs.

12. Most of the schemes in the area of rural development and natural resource management have been revamped to involve local communities. For example, new guidelines, based on the recommendations of Dr. Hanumantha Rao Committee, have been issued for the implementation of all area development programmes. These guidelines make it mandatory that all such projects be a part of the action plans prepared on a watershed basis and must involve local communities through Watershed Associations. Further, in the forestry sector in pursuance to GoI Circular of 1 June 1990, 22 State Governments have issued their guidelines to involve village communities and NGOs in protection and regeneration of degraded forests on the basis of their taking a share of the usufruct from the forest areas that they protect and develop. As of January 2000, more than 36,075 Village Forest Committees are protecting about 10.25 m ha of degraded forests.

13. These steps signify a major shift in approaches viz., from sectoral to integrated and from governmental to people's programmes. Along with these, emphasis has been laid on incorporating traditional practices, particularly water harvesting in such projects and schemes. In the past, village communities have developed many environmentally-friendly, traditional practices in the field of crop production, mixed farming, water harvesting, forage resource conservation, combined production systems, biodiversity management, forestry, energy and the storage of grains/tubers. While some of these practices have already been incorporated into on-going programmes, efforts would be made to restore them, improve them up with modern approaches and use them in combating desertification. These changes are in harmony with the spirit of CCD.

14. Though the above-mentioned efforts have been significant to an extent in combating desertification and drought and in reducing their impact, much more needs to be done, considering the magnitude of the problem. To rehabilitate the total vulnerable area of about 107.43 mha, a coordinated effort, as well as significantly enhanced budgetary support, would be required. The provisions of

CCD and the formulation of the National Action Plan (NAP) would play a major role in providing these.

15. Towards the preparation and implementation of the NAP, the Ministry of Environment and Forests (MoEF) functions as the national focal point for the CCD. It has established a 20 member National Steering Committee (NSC) chaired by the Special Secretary, MoEF. The Committee includes the Secretaries of the Ministries, Directors of Research Institutes, Heads of Departments and NGOs concerned with programmes related to combating desertification. The functions and the mandate of the NSC are: (i) to review national priorities, (ii) to assess the progress of the preparation of the NAP and (iii) to ensure effective inter-ministerial coordination for the implementation of the NAP. MoEF provides secretarial support and funds required for the efficient functioning of NSC. The NSC constituted four Working Groups (WGs). These are: (1) Desertification, Monitoring and Assessment and Early Warning Systems, (2) Sustainable Land Use Practices for Combating Desertification, (3) Local Area Development Programme (LADPs), and (4) Policy and Institutional Framework. Each WG has its own terms of reference. The WGs will provide inputs for the preparation of the National Action Programme (NAP).

16. The focus of the National Action Programme (NAP) would be in areas which are considered important by CCD (Article 10 of the Convention), but have not been adequately treated in NCS and EPA viz., improving institutional capacity and organization at the grass-root level, promoting alternative livelihoods, etc. Depending upon the evaluation of ongoing strategies and programmes and assessment of current and future needs to combat desertification and mitigate the effects of drought, the NAP would be oriented to give the thrust on meeting community needs of drinking water, food, fodder and fuelwood, with a view to improve their quality of life.

17. Linkage with Regional Action Programme (RAP) has been established by participating in the six Thematic Programme Networks (TPNs) and India is host to the TPN2 "Agroforestry and Soil Conservation in Arid, Semi-arid and Dry Sub-humid Areas". MoEF and ICAR have facilitated establishing and functioning of the TPN2 at the Central Arid Zone Research Institute, Jodhpur, in collaboration with four other main institutions. The Space Application Centre, Ahmedabad, has been identified as the Technical Coordinator for establishing the TPN-1 "Desertification Monitoring and Assessment" network in India.

18. At the UNCED, four important environmental instruments were agreed: The United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD), the United Nations Convention to Combat Desertification (UNCCD) and the Principles for Global Consensus on the Management, Conservation and Sustainable Development of all types of Forests (Forest Principles). The important element about these instruments is the considerable similarities and complementarities at the scientific level. Indeed, Sustainable Development by definition requires that issues be addressed holistically to ensure that solution to one environmental concern does not introduce another. Therefore, the scientific linkages between the different instruments that exist and their own provisions could provide an avenue for an integrated and cost effective approach in implementing the instruments in future.

19. MoEF has prepared the National Forestry Action Programme (NFAP) for sustainable development of the country's forests as a part of the programme recommended by the United Nations Conference for Environment and Development (UNCED), its subsequent forum, the Commission on Sustainable Development (CSD), and the Intergovernmental Panel on Forestry (IPF) for launch of NFAP globally. The National Policy and Macro-level Action strategy on Biodiversity has been formulated.

20. Even though the concerned ministries and the State Governments have taken measures for local capacity-building, a lot remains to be done, particularly at the grass-roots level. The Central Soil and Water Conservation Research Institute, Dehra Dun, has been serving as a focal institute for watershed management and soil conservation. The Committee on Training in Watershed Development has also envisaged an active role for the National Institute of Rural Development (NIRD) for a massive nationwide human resource development. Training will be given a high priority and this is an area where external assistance would be required.

21. In the country several organizations are engaged in the monitoring of different aspects of desertification and drought. Work is in progress to establish an Early Warning System (EWS) and a drought management plan. In so far as monitoring and evaluation (M&E) of programmes/projects undertaken within the framework of NAP is concerned, it will be carried out by the Programme Evaluation Organization Wing of the Planning Commission, with the active support of the Environment Information System (ENVIS) in MoEF. The aim should be to eventually develop a user-friendly M&E system, incorporating the relevant indicators, base line data, targets, data source and collection methods, which may finally lead to Community Based Monitoring System (CBMS) at the local level. The criteria for the selection of impact and implementation indicators have been briefly discussed. A logical framework approach for the monitoring and evaluation of each NAP project has been suggested.

22. It is seen from the foregoing discussion that GoI soon after independence launched several programmes to combat desertification and mitigate the effects of drought. Even though the Government has been allocating substantial funds for the programme, these were far short of the funds needed to fully address the enormity of the problem. External assistance is therefore required for mounting a massive programme to fight the menace. As soon as the NAP document is finalized, appropriate programmes/projects identified and prioritized, consultations with multilateral and bilateral agencies and international donors would begin.

23. The report summarizes the thrust areas for action in the future and emphasizes the need for a National Action Programme which will provide an institutional mechanism, both in terms of achieving better coordination among affected states, and the national agencies involved in land management. It will also supplement GoI's resources with external assistance available within the CD framework for a more comprehensive, coordinated and participatory programme of action to combat desertification and mitigate the effects of drought.

INDONESIA

Land degradation in Indonesia has reached an alarming stage, affecting 48.5 million hectares in which 27.8 million hectares are already in a critical condition.

The underlying causes of land degradation in dry areas of Indonesia are rooted in a complexity of social, economic and aggravated by over-exploitation and poor land management.

Various forms of degraded land known widely in Indonesia as critical land related to water scarcity and long drought seasons are widely distributed in several provinces of Indonesia, especially in the provinces of the Eastern part of Indonesia.

Several institutions and agencies are involved in the implementation of land rehabilitation and soil conservation and monitoring of drought in Indonesia. Coordination mechanism in the planning and implementation of land degradation control has been established, particularly by the Directorate General of Land Rehabilitation and Social Forestry, Ministry of Forestry and Estate Crops (MOFEC).

It was agreed during the National Workshop on the Implementation of UNCCD conducted on 13 June 2000 in Bogor that the National Coordinating Body (NCB) of the UNCCD in Indonesia is the Ministry of Forestry and Estate Crops and the National Focal Points are:

- Director of Land Rehabilitation and Soil Conservation, Director General of Land Rehabilitation and Soil Conservation, MOFEC;

- Director Bureau of Planning and International Cooperation, MOFEC.

The implementation of land rehabilitation is regulated by several laws: Forestry Law, Agrarian Law, Autonomy Law and other related government regulations. Several guidelines and manuals on watershed rehabilitation, soil conservation, land rehabilitation and drought monitoring, ex-mining reclamation, have been formulated by related institutions.

Biophysical, social, economical and cultural constraints have affected the low degree of success in the implementation of critical land rehabilitation in Indonesia. Economic crisis, low level of community participation and lack of coordination among the related institutions are the main burden which need to be solved for better implementation of land rehabilitation in the near future.

Research activities to find adoption technologies for combating degraded lands in dry areas based on local bio-physics, socio-economic and cultural conditions is conducted by the Forestry and Estate Crops Research and Development Agency (FERDA), including research programmes for the management of agroforestry in dry ecosystems and improving land degradation control technology.

Empowerment of local communities and the promotion of traditional knowledge in land rehabilitation control and agroforestry will be the main part of the action program for 1999-2004 in line with the decentralization process of development activities.

Project ideas priority actions were identified by several institutions for the implementation of UNCCD among others are: study on fast growing tree species for land rehabilitation, promotion of animal husbandry for dry region, climatic variability analysis and agroforestry technology development on dry areas of Indonesia.

Indonesia is expecting that its participation in the Convention will improve national and international capacity-building, enhance implementation and experiences exchanges and promote international support for land degradation control and drought impact mitigation in the country.

IRAN (ISLAMIC REPUBLIC OF)

1. The Strategies and Priorities Established within the Framework of Sustainable Development Plans and/or Policies

The Islamic Republic of Iran (I. R. Iran) is situated in South West Asia, bordering the CIS states in the North, Afghanistan and Pakistan to the East, Iraq and Turkey to the West and the Persian Gulf to the South. The country occupies a total land area of nearly 1,650,000 square kilometres and is the second largest country in the Middle East.

Most of the country is covered by arid and semi-arid lands in which the average annual rainfall is less than 250 mm, which is scattered irregularly both in terms of time and area and potential for evapotranspiration is many times more than precipitation. It amounts to more than 100 times in certain regions in the country. The net result is a lack of opportunity for the vegetation to develop and a decrease in the biological productivity of agricultural lands and natural vegetation. Desertification and drought adversely affects about half of the country's population.

The country's population is about 63 million with an annual average growth rate of about 1.4 per annum. More than 38.7 of the population lives in rural areas where farming and animal herding is the major source of income. Beside the high human population, there is also a large number of livestock which dependent on the land. The pressure on the land has resulted in the increase in utilization of marginal areas for both cropping and grazing. This situation, coupled with natural erodibility of the land and erosive nature of the rainfall in drylands which comes as flash floods, has caused severe soil erosion and general land degradation.

Many geographers and ecologists consider the central plateau of Iran as one of the world's most famous and unique deserts, and the Lut desert, located in the South-Eastern part of the plateau, is the most arid and the hottest point on earth.

The particular climatic conditions of Iran contributed, in addition to the formation of more than 3000 years of indigenous knowledge. Furthermore, institutional frameworks have been created and concerted efforts undertaken during the last forty years. On that basis, a broad range of strategies has been developed and programmes implemented to address the many problems associated with desertification and drought before the advent of the UNCCD. As a result, 3,000,000 hectares of degraded lands have been rehabilitated. In

addition, the regular 5-year Economic, Social and Cultural Development Plans (the third plan under implementation) have paid particular attention to soil, water sustainable management of rangelands and forests. Iran has already been involved in sharing its long experience and expertise in the fields of combating desertification and sand dune fixation with other countries.

The Government of Iran is committed to the concept of sustainable development through linking the environment to the overall development process. Since UNCED, the Government has launched various initiatives to promote and support the implementation of Agenda 21 and sustainable development. Among these are the efforts to coordinate all environmental activities in the country by the High-Council on Environment and the formulation of a National Action Plan for the Environment (NEAP) which is now in place. Within this context, there is consensus within the Government that land degradation is a priority environmental problem in the country and that UNCCD offers a timely and strategic framework within which these issues could be addressed.

In line with its obligations under the convention and as a national priority, the Government has already launched the elaboration of the National Action Programme (NAP) to combat desertification. The Government has adopted the framework and guidelines of the NAP. The formulation of NAP will supplement the past and existing initiatives in combating desertification in the country.

2. The institutional measures taken to implement the UNCCD

I.R. Iran is one of the first countries that signed the international Convention to Combat Desertification and has completed the ratification process in 1996 and thus became a member of the Convention. Among measures taken by the Government are putting in place an institutional structure, as well as formation of thematic working groups to get the participatory process of NAP formulation under way. To spearhead this effort, a National Committee to Combat Desertification (NCCD) (National Coordination Body-NCB) has been established under the overall coordination of the Minister of Jahad-e-Sazandegi, (Rural Development), who acts as the chairman of the Committee. The NCB comprises various relevant ministries, institutions, academia, local communities and NGOs and international organizations representatives. The NCB continues its efforts towards the elaboration of the NAP, in close cooperation with the National Committee for Sustainable Development (NCSD).

An Executive Committee (EC) already exists and is composed by all relevant technical institutions: researchers and technicians, as well as well known institutions. The objective of the EC is to provide advice and guidance to the steering committee for all technical and substantive matters related to desertification. The NSC is composed by the existing National Committee and broadened to Representatives of all concerned Ministries, NGOs, Women Groups, Local Municipalities, and the private sector. Also, this process is being backstopped by UNDP as well as ESCAP through the DESCONAP Programme Office (DPO) located in Tehran.

The intersectoral and multidisciplinary character of the NCB is manifested in the National Steering Committee (NSC). The NSC includes relevant ministries, institutions, academia, local communities and NGOs. The Forest and Rangeland Organization (FRO) has been designated as the focal point for implementing the NAP activities. FRO provides the NCB with necessary requirements such as

communication and transport facilities for stakeholder coordination, office space, etc.

The National Focal point (NFP) for UNCCD has been designated by FRO who is accountable to the NSC and supported by a full-time secretariat.

At the local level, regional centres for planning and implementing the Convention to Combat Desertification and sand dune fixation programmes and projects, have been constituted by FRO in 12 provinces of the country, representing more than 60 per cent of the country's total area. These centres coordinate the activities in each region, in close cooperation and collaboration with the Islamic villages and cities councils (elected directly by the people) and the other relevant governmental and non-governmental organizations in each province.

Women have always played a major role in combating desertification efforts in the country. However, promotion of the role of women at all levels, including at policy and decision-making levels, is being paid particular attention.

The UNCCD principles and the NAP guidelines based on past experiences have already been integrated into the national 5-year development plan under implementation.

At the regional level, the ESCAP DESCONAP Programme Office (DPO) located in Tehran, continues to play its role in the region through holding seminars, workshops, training courses, exchange of information and experiences.

The International Experts Group Meeting on the Preparation of the RAP for Combating Desertification and Drought in Asia was held in Bangkok, Thailand from 10 to 13 November 1998. The Meeting decided that the first stage of the implementation of the RAP should include the development of three specific Thematic programmes Network (TPNs) and adopted their Terms of Reference (ToR). These include the TPN on Rangeland Management, including Fixation of Sand Dunes, to be hosted by Iran. The Network is scheduled for launching in 2000.

Environmental laws and regulations are also important elements in the management of environmental affairs, and these have been evolving rapidly in Iran since 1971. Although the Environmental Protection Act was ratified in 1974 and enacted the following year, since the victory of the Islamic Revolution greater importance has been accorded to environmental laws and regulation; indeed, I. R. Iran is one of the few countries in the world which has a special article in its constitution on environmental protection.

Article 50 of the constitution states that is a public duty to protect the environment in order to assure the well-being of present and future generations. Accordingly, all activities that pollute or irreparably damage the environment are prohibited.

The "Development of a Green Economy" initiative announced by the I. R. Iran in 1990 illustrates the link that environmental legislation makes between the environment and the economy. The First, Second and Third Development Plans also took this integrated approach. Legislation on environmental impact assessment has also been formulated and also the Decision 138 (1995) of the High

Council for the Environment requires an "environmental assessment report" on all major development projects to be submitted before they are implemented.

Existing regulations on air, water and noise pollution and waste and sewage disposal have contributed to the creation of a body of legislation for managing the human environment. However, there is still a critical need for additional legislation.

The development and implementation of the National Programme of Action for Environmental Protection reflects the importance accorded to environmental issues in I. R. Iran. The National Committee for Sustainable Development (NCSD), which comprises eight subcommittees including the subcommittee on combating desertification, is the lead institution in environmental strategy and policy development. At the same time, the decisions of the National Committee on Combating Desertification (NCCD) under the chairmanship of the Minister of Jihad-e-Sazandegi (rural development) are considered as obligatory to all institutional members of the Committee. FRO is also a member of the High Council of the Environment under the auspices of the President of the Islamic Republic of Iran.

Based on Articles 45 and 50 of the National Constitution, the regular five-year development plans, adopted by the National Parliament, also take fully into account the principles of CCD and the experiences of the past. Sectoral laws governing the management of natural resources include the following: land tenure, forest act, wildlife act, and water act also exist. These laws are regularly reviewed based on the experiences gained from their implementation.

3. Participatory process in support of the preparation and implementation of the NAP

UNCCD calls for developing a strategy for concerted efforts and effective participation of key actors involved in defining NAP process and priorities. Some of the policies and activities undertaken by the Government to promote the participatory approach in combating desertification efforts include:

- Enactment of laws for encouraging the local communities and CBOs to exploit natural resources in the rangelands in a sustainable manner in accordance with CCD principle and the objectives of sustainable development. In this connection, the ownership of lands has been left to local communities, including farmers and pastoralists, aiming at reclaiming the degraded lands and exploitation of natural resources based on scientific principles. For this purpose, the necessary training and information are provided to local people;

- Education and extension activities at the local level in order to encourage and promote public participation and awareness raising in the methods for the protection of land resources and the control of land degradation;

- Assisting and encouraging the formation of school students groups (Pooyandegan), as well as other youth, women, students, farmers and pastoralists groups;

- Enactment of laws aimed at reducing state intervention and instead, increasing the public role in combating desertification efforts;

- Meeting of NGOs and CBOs was helped by the FRO. The objective of the meeting was to identify how better NGOs and CBOs active in combating desertification activities can be involved in the preparation and implementation of the NAP;

- Seminar on Women and Desertification was organized in June 1999 by NGOs which was supported by the CCD secretariat. UNSO, UNDP and Iranian FRO provided the necessary facilities;

- Meeting with community elders has been organized by NFP in order to remind the indigenous knowledge and technologies. An inventory of such technologies and knowledge has been prepared and reported to COP 1 of UNCCD and reflected in UNCCD reports to COPs of the Convention;

- Project document on the Development of the National Action Programme has been prepared with UNDP assistance.

At the end of which, the following are but some of the results relating to public participation expected to be realized:

- Awareness of public raised and decision-makers sensitized on desertification issues including local populations;

- Effective participation of all stakeholders at all levels;

- Role of women strengthened in the implementation of the UNCCD;

- The coordinating unit, Executive committee and representatives of civil society trained;

- Two subregional seminars and workshops on NAP development and new technologies for combating desertification were organized by DPO in which countries from South and Central Asia, Western Europe as well as the UNCCD secretariat, United Nations organizations and a large number of Iranian NGOs, CBOs and academia actively participated;

- GEF project entitled "Carbon Sequestration in the Desertified Rangelands of Hossein Abad, South Khorasan, through Community-based Management" is under implementation. The results of this project are also supposed to be used while formulating the NAP in terms of the involvement of local people;

- Upon a contract, the draft Terms of Reference of TPN3 to be hosted by Iran, was prepared by an Iranian NGO;

- The NAP guidelines adopted by the Government emphasizes public awareness at all levels of society and women and public participation, in the decision, natural resources and combating desertification.

Although NGOs concerned with environmental issues are not yet sufficiently developed in Iran, there are signs that they are on the increase. According to the information provided by the Department of the Environment, there are currently 170 environmental NGOs active throughout the country. These groups have been engaged primarily in educational and publicity activities and the implementation of some projects on the ground. An inventory of NGOs and CBOs has

been prepared by the Department of the Environment. Also, a network of environmental NGOs has been created by the Department.

4. Consultative process in support of the preparation and implementation of the NAP and the partnership agreement with the developed country partners and other interested entities

Iran did not receive significant support and active participation by international partners in the preparation and implementation of the NAP. The GEF project on carbon sequestration, UNDP involvement in all the stages of NAP process, consultations with UNSO, UNCCD Global Mechanism (GM), IFAD and FAO are some of the efforts to involve the donor community, while Iran did not receive any support from bilateral donors. However, technical and financial support for finalizing the NAP formulation process is the principal need at this stage.

Due to the vitality of the issue for Iran as one of the most affected countries by desertification and drought, significant amounts of resources have already been devoted to the preparation of NAP and the implementation of combating desertification projects. It is noteworthy to mention that recently a contract has been signed between the FRO, NGOs and University of Tehran for consolidating the scientific approach in the NAP. As a result, national resource mobilization is the main financial support for the NAP process. Therefore, there is an urgent need for the donor community to realize the objectives of the Convention through the provision of new and additional funding and mobilizing and channelling the existing resources in support of the most affected regions and countries.

A regional symposium on sustainable development of drylands will be held in the province of Yazd in central Iran with the financial and technical support of UNDP. Representatives from India, China, Pakistan, Central Asian Republics, relevant international organizations, as well as, NGOs, CBOs, and women and youth organizations are invited to participate in the Symposium. The outcome would not only contribute to the NAP process in Iran but would also provide a good opportunity for sharing information and experiences with other countries. A new Regional Center on Sustainable Development of Desert Communities is supposed to be established in Yazd. It is also expected that the Symposium would play its role in the mobilization of resources from foreign sources.

5. Measures taken or planned within the framework of the NAP, including measures to improve the economic environment, to conserve natural resources, to improve institutional organization, to improve knowledge of desertification and to monitor and assess the effects of drought

Desertification and drought affects the daily lives of a large proportion of Iranian society. Therefore, the NAP should address economic, social, cultural, and environmental aspects of the issue. Based on the long experiences gained during four decades of combating desertification activities, and the diagnoses and evaluation of these activities and review of the past experiences in Iran, appropriate actions are envisaged in the NAP process. These include, among others, at the macro-level, the following:

- integration of environmental considerations in general and combating desertification in particular, into the policies and activities of all relevant national ministries and local institutions;

- emphasizing on population control policies and family planning, especially in rural areas, in accordance with Islamic values;

- according priority to the sustainable land management and institutional coordination for preventing land degradation, as well as desertification control;

- promotion of the use of new technologies and techniques relating to combating desertification and better use of indigenous knowledge and technologies;

- enactment of necessary laws and amending the existing rules and regulations in conformity with sustainable development policies and programmes, including combating desertification;

- public awareness at all levels of society;

- public participation, including NGOs, CBOs, local people, private sector, youth and women, in the decision-making, management and the implementation of the NAP and of projects on natural resources and environment in general and, on water, soil and agriculture in particular;

- revitalization of and upgrading the research centers;

- capacity-building, at various levels.

The Forest and Rangeland Organization (FRO) is an important organization with branches in all provinces of the country. This organization, with 40 years history in combating desertification efforts, is in charge with the development of policies and projects on combating desertification and sand dune fixation, as well as sustainable management of forests, reforestation and afforestation activities. Significant amounts of resources are provided to this organization upon its programmes and activities. Policies, activities and institutional framework of FRO are under regular review based on the gained experiences. Several joint projects on sand dune fixation and combating desertification have been defined and/or implemented by FRO in neighboring and other countries.

Today, several research institutes and faculties on combating desertification exist around the country. One of the objectives of the NAP is to strengthen and improve the work of these institutions. The integration of the results of several ongoing projects, including "the GEF carbon sequestration based on community management", are proposed to be integrated into the NAP.

The FRO branches play an important role to facilitate liaison between local and national level through coordination and cooperation with the Islamic Cities and Villages Councils (elected directly by the people), as well as the governors and mayors. This is how the community initiatives are reflected in the policies and strategies at the macro level and into the day-to-day programmes for combating desertification. However, there is still a lack of effective management and lobbying capacities in CBOs and especially with women-folk. Therefore, one of the NAP priorities would be to enhance the effective participation of NGOs/CBOs and affected grass-roots communities. Training is also an important part of this endeavor which has already shown remarkable results.

Drought is also one of the major threats to the Iranian society. In the current year, drought had already unprecedented and devastating effects on 15 provinces in the country, comprising about 30 per cent of the population. A remarkable disaster response mechanism exists in the country, including a special committee on natural disasters of the Ministry of Interior, the existing mechanisms in the Red Crescent Society of the Islamic Republic of Iran, as well as the Ministry of Jihad-e-Sazandegi (rural development) and the FRO. Iran's experience and expertise in this field is also known by other countries and the relevant international organizations. As far the activities for mitigating the effects of drought is concerned, no foreign assistance has been recorded yet.

6. Financial allocations from national budgets in support of the implementation as well as financial assistance and technical cooperation received and needed, identifying and prioritizing requirements

The constant and twin problems of desertification and drought heavily influenced the development planning in Iran over the last decades. The national budget allocated for these activities during the Second Five-Year Development Plan (1995-1999) was 153,469,000,000 Rials ($51,000,000). At the same time, the private sector and local communities have invested an additional amount of 15,000,000,000 Rials ($5,000,000). In addition to the environmental and social aspects, the protection of cities, towns and villages, as well as the industrial complexes, roads and railroads networks and ... towards the moving sand dunes has always imposed considerable pressure on the national budget. This is while several Ministries and institutions undertake activities in line with anti-desertification campaign which is in fact coordinated under the national development plans.

The bulk of resources for the NAP process in Iran is being provided by the Government. However, due to the magnitude of the problem and limited resources, chances for the NAP success depends to a large extent on donor support.

Financial resources, technical and technological support, access to know how and exchange of experiences and expertise are challenges facing successful NAP process. Iran, while being in need of this shopping list, is also prepared to share its experiences with other countries through organizing training courses for experts from affected countries, development and implementation of joint projects, study tours, etc.

7. Review of the benchmarks and indicators utilized to measure progress and assessment thereof

The National Plan of Action for the Protection of Environment prepared by the Department for the Environment analyzes the current environment situation in Iran. In accordance with the sustainability indicators in water, soil, climate, flora and fauna and through a comparative study, the state of Iran's natural environment and natural resources is defined.

These data are accessible to interested people and organizations but scattered in several organizations. Furthermore, the indicators and standards used are not similar. Recently, the research and study units have endeavored to update this data and make it available through modern software systems. In general, there exists a considerable volume of data relating to the environment

and natural resources, but the challenge is how to collect and upgrade the data and how to facilitate rapid access by all interested parties.

During the last few years, efforts have been made in order to harmonize benchmarks and indicators for measuring progress in combating desertification and the assessment models needed. Currently, the Center for Research on Drylands is undertaking case studies in various regions in the country to assess the last thirty years of the desertification process and combating desertification in Iran. Also, the faculty of social sciences of the University of Tehran implemented a project on comprehensive assessment of improving methods in rangeland management in arid and semi-arid areas.

The results of these assessment studies contribute to the regular review of policies and strategies and their promotion and updating and therefore, more qualified programmes and their successful implementation.

JORDAN

Jordan is a country where arid climate and fragile ecological systems are predominant. The country suffered drastically from a sudden increase of population due to political conditions that prevailed during the second half of the past century. These conditions have had detrimental effects on natural resources and the environment. Due to various factors most parts of the country is subjected to desertification in one form or another.

Being aware of the dangers and threats of the phenomenon, the Government has initiated several actions to streamline its policies and strategies with the objectives and principles of sustainable development and combating desertification.

The National efforts to control degradation, although not in the context of recent definition of desertification, had started before independence and continued in various forms by different institutions, both public and NGOs.

Development plans paid considerable attention to environmental issues. However, the most recent plans placed more emphasis on desertification compared to earlier ones. The Third Five-Year Development plan emphasized the need to protect the agricultural environment from desertification so that the area of arable land is maintained and the soil is protected from various degradation processes. The plan advocated the adoption and encouragement of popular participation in all phases of development projects and programmes.

Jordan has prepared both a National Environmental Strategy (NES) in 1991 and a National Environmental Action Program (NEAP) in 1996. NES aims to maintain long-term environmental balance and enhances the preparation of development plans, while ensuring its continuity through economical planning. NES prioritized the areas to be addressed to ensure sustainable productivity of agricultural land, while protecting the environment.

NEAP aims to guide government environmental policy and investment decisions and to articulate programmes to implement such decisions.

A country study on biodiversity was prepared and efforts are underway to produce a biodiversity strategy and action plan. Equally, a National Agenda 21

is being finalized which includes a comprehensive chapter on desertification, its causes, actions to be taken, and proposed projects that would address these threats.

Jordan has prepared an Agricultural Policy Charter (APC) with the objective of management and utilization of available agricultural production factors in an economically efficient manner while ensuring sustainability. APC stressed the need to tackle various factors hindering the application of effective production practices. In dryland farming áreas, sufficient consideration is given to important practices and issues as water harvesting, combating desertification, genetic resources conservation and preparation of legislation pertinent to desertification. APC also outlined proposed measures to conserve and sustainably utilize low rainfall areas, forests and irrigated areas.

Jordan had also prepared a strategy for the utilization of water resources, which prioritizes the allocation of water resources between different sectors. The Government also prepared several policies regarding the uses of different types of water. Special attention was given to efficiency, optimal utilization, resource protection, and participation by the private sector in their management.

Following the adoption of the UNCCD, the Ministry of Agriculture, with the assistance of ESCWA, UNEP and FAO, prepared a National Action plan to Combat Desertification with six programme areas. These programme areas streamline with the principles of UNCCD such as the participatory approach, poverty alleviation, empowerment of local community and efficient resources conservation and management, recommend the establishment of National Coordinating Body (NCB) to catalyze preparation, coordination and implementation of the National Action Programme. It advocated joint efforts and coordinated activities, at the subregional and regional levels, with respect to combating desertification.

National institutions also had taken major steps towards protection and conservation of resources. These efforts are reflected by the establishment of research plans and departments in public universities, with appropriate teaching and research agenda and advanced techniques to meet the nation's concerns regarding environmental degradation and conservation of its resources. The increase of NGOs directly involved in combating desertification and control of environmental degradation also supported national efforts.

The environment is managed by two institutions as the main focal points, which coordinate the efforts of several public and semi-public institutions. The two institutions are: the Higher Council for Environment Protection (HCEP) and the General Corporation for Environment Protection (GCEP). HCEP as an autonomous body, has a wide range of responsibilities. With respect to soil resources, its duty is to supervise and monitor sources of pollution as well as soil erosion and desertification, in order to undertake necessary rectifying actions. GCEP has an Environmental Protection Fund that can be invested in different aspects of environmental conservation and management. It has a number of relevant specialized committees, one of which is the National Committee on Desertification.

GCEP is the lead national institution with respect to UNCCD and is concurrently acting as the NCB. The core of the work on desertification and

recurrent activities are handled by the Nature Conservation and Land Protection Directorate (NCLP). Within this Directorate, the Division of Land Protection (LP) shoulders most of the responsibilities pertinent to desertification. LP is giving priority to the collection and consolidation of national experience for combating desertification.

The National Committee for Combating Desertification has determined areas for action. However, its work plan is constrained by the limited financial resources and trained human resources. LP has limited staff, facilities, and funds and would greatly benefit from assistance to upgrade its present status and improve performance.

NCB has limited information system capacities and no database on desertification exists. Several national institutions have relevant databases, which can form the starting point for the establishment of a national database on desertification.

The Kingdom has a number of well-organized NGOs actively involved in programmes and activities dealing with the environment, nature conservation, and combating desertification. Their activities are well focused, but suffer from the lack of adequate funds.

Jordan issued several laws directly addressing environmental issues (Environmental Law No 12) and agricultural law addressing resources and their protection (Agricultural Law No 20, year 2000). In addition, several strategies including the strategy for the protection of environment, Water strategy, Agricultural Policy Charter, different water policies, Action plans for Combating Desertification, Action Environmental Plan, Agenda 21 Action plan (under production) and Action Plan to Conserve Biodiversity (under preparation).

Efforts to conserve and combat desertification are assumed by the Ministry of Agriculture, GCEP, and other government institutions through raising awareness initiatives and promoting public participation. In addition to the vital role undertaken by NGOs who are taking the lead in this respect, environmental education is gaining momentum through efforts of the Ministry of Education, the media, and universities all of which produce special documentary programmes.

Regional and international organization and developed countries have provided technical and financial assistance towards resources conservation and combating desertification. Coordination of international efforts is carried out through the Ministry of Planning, while the coordination of national efforts is carried out through GCEP. Both international and national coordination mechanisms need further improvement and enhancement.

Several relevant projects are either ongoing, or have been implemented. However, a comprehensive review of these projects to assess integration and harmonization efforts and relevance to UNCCD has not been done. The Government also has not determined specific mechanisms to ensure funding and resource mobilization strategies for future projects and programmes that can be generated by reformulation of NAP.

Also, formulation of practical indicators to monitor the implementation of the UNCCD has not been initiated. However, the scene is rich with relevant

issues, strategies, policies, country studies, action plans, including Agenda 21, executions of a wide range of projects covering different aspects of desertification in particular and environmental protection and resource management in general. In addition, institutional capacity-building can be employed to achieve this goal.

KAZAKHSTAN

The Republic of Kazakhstan is a large Eurasian country. Its area is 2.7 million square km. Almost all types of the world landscapes are represented in this vast territory - from dry subtropics and hot deserts to high mountain tundras and glaciers.

The main specific features of the natural conditions of Kazakhstan are its intracontinental location in the centre of Asia, distinctly continental, arid climate on the significant part of its territory and predominance of plain landscapes. About 45.5 per cent of the Kazakhstan area is occupied by steppes, 50 per cent - by deserts, the ecosystems of which are highly vulnerable to the anthropogeneous impact, and easily destabilized with low self-restorability.

For many decades the Kazakhstan economy was developed extensively without consideration of environmental consequences of such policy. This led to large-scale, deep damage of ecosystems, desertification, loss of biodiversity and caused critical social and environmental situations in many regions of the country. The total area of desertificated lands in the Republic of Kazakhstan is about 179.9 million hectares or 66 per cent of its territory. Desertification processes have covered many regions. Kazakhstan faces a very urgent necessity to prevent further degradation of the natural environment and to take specific measures on the rehabilitation of degraded natural ecosystems, creation of normal human environment. Hence, the Republic of Kazakhstan signed in 1996 and ratified on 7 July 1997 the United Nations Convention to Combat Desertification, thus committing itself to follow it.

In 1997, by assignment of the Government, the National Action Program to Combat Desertification was worked out by a group of scientists with the wide involvement of the public and with financial assistance of UNDP and UNEP. In 1999 Kazakhstan started to develop the National Strategy and Action Plan to Combat Desertification (NSAPCD). It shall be mentioned that the national strategic directions of combating desertification were developed as an integral part of the wider national policy on environmental and food safety, sustainable development of the country, outlined by the President of the Republic of Kazakhstan N. Nazarbayev (1998) in the "Kazakhstan-2030" Strategy (1998).

The main strategic aim of the state policy of the Republic of Kazakhstan on combating desertification is to prevent further degradation of natural ecosystems, stage-by-stage restoration of the natural potential of the desertificated territories, to provide favorable human environment on the base of optimal development of industry, wise use and protection of natural resources and the conservation of biodiversity. To achieve these objectives there will be created a system of efficient management of nature use, founded on environmental restrictions, based on environmental zoning of the territory of the Republic.

The basis of environmental zoning will be an ecosystem principle, consideration of the present-day situation and definition of ecosystem potential capabilities - ecological region capacity. Nature use planning and a system of natural environmental protection, the crucial element of which is the Territorial comprehensive nature protection scheme, are built on the evaluation of the environmental situation, made in the process of environmental zoning. The scheme on the base of environmental zoning on the national and oblast levels elaborates the trends of the economy development of a given region as well as outlines the ways of stabilization (or improvement) of the environmental situation. The Territorial comprehensive nature protection scheme is considered to be a starting point for completion of economic development programmes and includes activities to combat desertification.

To implement efficiently a policy on combating desertification, the NSAPCD envisages the creation and introduction of a consistent system of nature protection legislation, complying with the current requirements of legal, financial and economic basis for nature use.

In the course of achieving the purposes of environmental policy, it is envisaged to widely use economic mechanism of nature use, based on the principle of prevention of damaging the natural environment, ensuring sustainable development. This will allow to ensure harmonic combination of the problems of the environment and economy in the sustainable development of the society. All economic plans of the development of the Republic of Kazakhstan, which include agro-industrial complex, mining, placement of enterprises, populated areas, communications, etc., shall take into consideration environment protection from desertification and improvement of the environmental situation.

The main guidelines of the NSAPCD are: radical improvement of the management of nature use and all natural resources, prevention of degradation of ecosystems, and the conservation of soil fertility.

The following strategic targets are envisaged to prevent degradation of ecosystems:

- rational territory arrangement, ensuring environmentally and economically reasonable location of lands and their internal layout;

- land protection from water and wind erosion, mud slides, flooding, swamping, secondary salinization, drying up, surface sealing, pollution by industrial wastes, chemical substances, forest protection from fires and other degradation processes;

- restoration and increase of fertility of arable lands, productivity of hay fields and pastures;

- re-cultivation of lands damaged in the result of economic activity and their re-introduction to the secondary economic rotation;

- rational use of water resources, wide use of water-saving technology in all sectors of industry, agriculture, and the municipal economy.

The following strategic targets are envisaged to ensure the conservation and balanced use of biodiversity:

- full recording of biodiversity and evaluation of its state;

- monitoring of the state of the components of biological and landscape diversity;

- expansion of the network of specially protected territories;
- definition of periods of raw material procurement from natural vegetation lands, avoiding damage to their composition and structure;

- rehabilitation and restoration of degraded ecosystems;

- conservation ex situ of the wild species of the cultivated plants in the regions of their origin;

- conservation of the genetic fund of local breeds of agricultural animals;

- conservation of the genetic fund of local ancient varieties of farm crops;

- creation of the bank of germinal plasma of rare and endangered species.

The specific action plan to combat desertification has been developed on the base of strategic targets, which will be implemented first of all through the elimination of the main reasons causing desertification, the definition of measures to prevent and eliminate these factors. The national plan will be supplemented by subregional and regional action plans, especially in cases related to the use of transboundary resources, such as lakes and rivers.

The required activities on combating desertification have been divided by terms of implementation to: short-term - 1st stage, mid-term - 2nd stage and long-term - 3rd stage. Long-term activities include measures, which can start at any stage, but will be continued for many years.

Short-term activities include:

- improvement of the system of nature use management;

- inventory analysis of land degradation: arable lands, pastures, hay fields, forests;

- development of the normative and legal grounds of the use of land resources on the base of environmental zoning;

- development of measures of the rational forest utilization, afforestation, improvement of forest protection;

- completion of schemes of development and location as well as creation of a network of specially protected natural territories;

- development of mechanisms of economic incentives for activities on combating desertification and balanced use of natural resources.

Mid-term activities include:

- setting of desertification monitoring;

- development of measures on farming adjustment to climate change and droughts;

- improvement and wide use of soil protection technology of cultivation of farm crops;

- rational use of natural fodder supply lands, creation of seeded pastures and hay fields on the degraded lands;
- rehabilitation of the vegetative cover on long-fallow lands, withdrawn from the lands of agricultural rotation.

Long-term activities include:

- forest and pasture amelioration on desertificated lands; fixing of moving sands to protect pastures, populated areas and economic works;

- amelioration of the lands, affected by secondary salinization, in the zone of irrigated land farming;

- mountain technique and phytomelioration re-cultivation of lands, affected by technogenic damage;

- organization of environmental education and increase of public awareness of desertification problems;

- development of traditional industries, handicrafts, sectors of agriculture.

A number of measures has been taken in the Republic to implement the National plan to combat desertification and drought consequences.

1. **Measures on improvement of the regional nature use management:**

By the Government Resolution #1693 of 12 November 1999, it has been decided:

- To create the following agencies of the Ministry of natural resources and environment protection of the Republic of Kazakhstan in the organizational and legal form of state institutions: committee of forestry, fishery and hunting; committee on water resources; environment committee; committee on geology and subsoil;

- The following departments have been created within the same Ministry: on analysis and planning, of the main state inspection, finance management, on state environmental expertise;

- These Government decisions have allowed to eliminate lack of coordination between the nature protection organizations and to concentrate control over use and protection of natural resources in one agency - Ministry of natural resources and environment protection.

2. Measures on improvement of the economic situation:

- Economic mechanism of nature use has been introduced, promoting the prevention of damaging the natural environment, stimulating the rational nature use and creation of additional source of financing of nature protection activities;

- Payments for use of natural resources have been introduced;
- Payments for environment pollution have been set;

- The republican fund of environment protection has been created; regional nature protection funds have been established in all regions and large cities. They allocate funds, and on a tender basis, implement activities on the conservation of natural objects, on the prevention of environment degradation, planting of greenery, re-cultivation of lands affected by technogenic damage.

3. Measures on conservation of natural resources:

- New edition of the 1st volume of the Kazakhstan Red Book was published (vertebrate animals), the 2nd volume of the Kazakhstan Red Book (invertebrate animals) and the 3rd volume of the Kazakhstan Red Book (plants) have been prepared, the 4th volume of the Kazakhstan Red Book (Green book - plant communities) is under completion;

- Bank of germinal plasma of rare and endangered species of plants of Kazakhstan has been created - collection of varieties, lines of farm plants, herds of breeds of domestic animals; museum of valuable microorganisms for industrial and medicine purposes was founded;

- New botanical garden of the Turkish Kazakh University named after Akhmed Yassaui was created on the highly desertificated area of the foothills of Syrdaria Karatau on area of about 100 hectares. Presently in the garden there is a genetic fund of fruit, soft fruit, ornamental plants; about 2,000 species, varieties and forms in total;

- Activities have been started on the rehabilitation of forest ecosystems affected by anthropogeneous desertification. The Project on "Conservation and rehabilitation of the wild apple orchards of the foothills of Trans-Ili Alatau mountains" has been developed and works are being carried out, not only on the restoration of the degraded wild fruit apple orchards, but also on the production of the valuable medical and food product - apple vinegar; "Mashatau" project has been developed and already on the area of 3 hectares, 300 seedlings of the Sieversia apple tree have been planted, and in the village of Jabagaly (Tulkubas district of the South-Kazakhstan oblast) a nursery was created, about 20 species of endangered plants where planted, which will be reintroduced in the place of their natural growth to rehabilitate the damaged ecosystems;

- During the period after adoption of the Convention to Combat Desertification, forest rehabilitation activities were carried out in Kazakhstan on the area of over 322,000 hectares, of which on over 208,000 hectares - through seeding and planting. Protection plantings were created on the area of about 25,000 hectares of which on 10,000 hectares pasture protection plantings were created on sands, ravines and on other inconvenient lands. Activities on the planting of greenery in cities and populated areas were widely carried out.

Annually over 10,000 trees are planted in each city. NGOs are involved in this work as well. "Tabigat" NGO alone in 1999-2000 planted 7,000 to 8,000 trees in the environs of Almaty city;

- In the steppe and dry steppe regions of Kazakhstan they widely use: soil protection rotation of crops with strip location on light soils of grain crops, fallow and perennial grasses; flat-cutting soil treatment, ensuring preservation of the stubble to protect soils from deflation and to accumulate winter precipitation to combat droughts; system of fodders and means of plant protection to increase soil fertility and to combat weeds;

- Forest amelioration works have been planned in the zone of ecological disaster in the Aral Sea region on the territory of the dried bottom on the area of 652,000 hectares, of which 17,000 hectares have already been planted with forest plantings. At the present time a project "Pastures ecosystems management in Aral Sea region" is being implemented under support of the UNSO;

- "Scheme of development and location of objects of the nature preserve fund of Kazakhstan for the period till year 2005" has been developed. Only in 1996 there were organized: one preserve -"Kokshetau" and two national parks - "Altyn Emel" and "Ili-Alatau";

- Project proposal on the creation of two preserve water swamplands in the delta of the Ural river and Alakol depression has been prepared. Scientific justification has been worked out, GEF has funded development of the B-status project;

- Project proposal on "Sustainable conservation of mountain agrobiodiversity of Kazakhstan" has been developed. Expert group has been formed, which has developed scientific justification of conservation of agrobiodiversity of Trans-Ili and Djungar Alatau mountain systems. The Technical Council of the Ministry of Natural Resources and Environment Protection has considered and approved an intermediary version of the project proposal. The Canadian International Development Agency (CIDA) has contributed $7.5 thousand to draw up and develop the B-status project. Estimated project cost is US$ 133,000;

- Transboundary project proposal on "Conservation of the Western Tien-Shan biodiversity" has been developed with the participation of the Republic of Kazakhstan, Uzbekistan and Kyrgyzstan. The grant agreement is planned to be signed in the USA. The Forestry committee has completed draft Government Decision on creation of the Project Supervisory commission;

- The following sub-law acts have been drafted in the Ministry of Natural Resources and Environment Protection: Concept and program of monitoring of environment and natural resources, Regulation on structure, content and procedure for state monitoring of environment and natural resources. Draft Law and draft regulation have been developed and signed on procedure for recording, processing and dissemination of information on environment protection in the Republic of Kazakhstan;

- Kazakhstan has developed the National Environmental Action Program for Sustainable Development (NEAPSD), as the most effective approach to solving ecological problems. The basic provisions of NEAPSD are included in the long-term Strategy "Kazakhstan - 2030" "Ecology and natural resources". In the

frameworks of the National Environmental Center for Sustainable Development of the Republic of Kazakhstan (NECSD) in 1998, eight projects on combating desertification were developed and presented at a donor conference and to the Government of the Republic. The realization of three projects which received financial support has begun. Six projects under other conventions have been developed, into which sections on combating desertification are included;

- Two grants were received for the restoration of degraded lands (SGP/GEF) the methodologies on the norms of withdrawal of the resources of land, pastures, vegetative raw material, on criteria and methods of ecosystem transformation assessment, on space monitoring on two polygons in the south of the country were developed. Ecological zoning and desertification assessment in the number of regions (Caspian and Aral Sea) were carried out;

- During the process of implementing the Convention, NGO activities have grown. Now in Kazakhstan there are about 200 environmental NGOs. Some of them are members of the RIOD network. NGOs are implementing some small pilot projects on combating desertification.

4. Measures on social and economic arrangement:

- Due to the new social and economic arrangement of the country, corporatization and privatization of farms land owners themselves in the future will carry out the considerable part of works on the rehabilitation of soil fertility, combating erosion processes and secondary salinization, re-cultivation of lands damaged by technogenic pollution, use of pastures and hay fields. In doing this, they will be using available scientific recommendations on rational land use;

- There have been developed: soil protection technology of land treatment; system of rotation of crops for all natural zones; measures to prevent wind and water erosion of soils, humus loss and secondary salinization of irrigated lands; technology and project of the mountain technique and biological re-cultivation of stripping and mining dumps; measures on the rational use of pastures and hay fields;

- Former collective state farms have been restructured; 97,400 private economic entities have been created, resulting in the reduction of share of lands used for agricultural purposes, from 81.2 per cent in 1990 to 39.6 per cent in 1999. Since 1991 over 16 million hectares of agricultural lands have been transferred to the villages to supply individual livestock with pasture fodders and to expand individual land plots of the local population;

- Activities to attract international financial and environmental organizations are being carried out to finance and implement environment protection projects. The following GEF projects are being implemented:

  - Conservation *in situ* of mountain agrobiodiversity;
  - The sustainable development of the Aral region;
  - Development of wind energy;
  - Conservation of the Western Tien-Shan biodiversity.

On 12 March 1999 Presidential decree on joining to the Annex of Kyoto Protocol was signed. Works are being carried out on the preparation and joining of the Republic of Kazakhstan to the Convention Annex 1 to the United Nations Framework Convention on Climate Change. Works are being carried out on the preparation of agreements (jointly with USAID/EPIC, WB and UNDP) on support of the development of projects on the Global Carbon Initiative. On 23-25 February 1999 in the cities of Astana and Almaty, seminars were held on the joint work programmes with USAID. 12 seminars have been prepared and held with the participation of international representatives and organizations.

5. Measures on widening public knowledge and awareness of the desertification problems:

- The text of UNCCD has been translated into the state Kazakh language for dissemination among local population;

- An education system is established in educational institutions (schools, lyceums, gymnasiums, secondary specialized schools, higher educational establishments) and out-of-school institutions - young naturalists stations. The main educational means is training in subjects of botany, zoology, biology, natural history.

- The role of mass media has been strengthened (press, TV, radio) in expanding of public knowledge of desertification problems; newspapers "Environmental courier", "Atameken", Environmental bulletin are being published;

- Under support of international organizations, a number of conferences, seminars have been held;

- In higher educational establishments there is a trend towards the expansion of infrastructure of environmental education; new chairs, courses, master schools on environment are opened;

- Center of environmental information of NGO "Ecology through mass media" has been created which carries out actions to combat desertification, including TV programs, contests. Annually, the Agency on management of land resources publishes the National report on the state of lands in Kazakhstan, on the base of established system of collecting information, provided by the Research Center on land resources;

- In compliance with the Law of the Republic of Kazakhstan "On Environment Protection", activities to combat desertification, on biodiversity conservation and other natural protection activities shall be financed from the following sources: the republican budget and local budgets, funds of environment protection, funds on environment insurance, own funds of nature users, other funding sources, not pronibited by legislation of the Republic of Kazakhstan;

- From the above-mentioned sources only environment protection funds and nature users own funds are in reality being used for financing nature protection activities. All other funds are practically not being used. The republican and local budgets, which were the main sources of financing environmental activity, at present completely lost their role. Environmental insurance funds are also not available since this form of insurance is not applied in the country;

- Due to the change of the political system and the orientation of the country toward a market economy, the centralized state management of land use has been weakened. Moreover, close economic interrelations of the republics of the former Soviet Union have been strongly disrupted. This has led to the sharp decline in the economic potential of all republics. As a result of this, the ability of financing many economic projects, including those on combating desertification and drought consequences, became limited.

KUWAIT

The State of Kuwait is located among the arid desert belt in the west of continents. Its environment is characterized by an extreme sensitivity due to the delicate balance between various elements such as climate, water, soil, vegetation cover and other living organisms. As a result of human activities and severe climatic conditions, some areas in Kuwait have been exposed to Desertification. However, aridity is a phenomenon that frequently occurs. These two phenomena led to a deterioration of the natural vegetation cover, to the erosion of soil, the deprivation of its productive capacity, sand encroachment on the economic constructions and habitats as well as an increase in sandstorms.

In order to combat these environmental problems, the State of Kuwait considered the protection of the prominent as one of the eminent affairs to be given special attention. In this field it has accomplished and implemented for three decades, various activities related to the protection and promotion of renewing natural resources focusing on the promotion of environmental deteriorated areas, protection of biodiversity, supporting and encouraging agricultural promotion (plant and animal). All this was achieved in addition to carrying out researches and studies, awareness programs and building up human capacity.

State plans and development programs included programs and projects dealing with environment protection and the development of renewing natural resources and Combating Desertification. Different serious matters have been registered among the state promotion scheme for the period 1999-2003:

- Realization of a complementary administration program for coast organization in the state of Kuwait induces an everlasting development and protection of natural resources in the coastal environment;

- Limiting the deterioration of desert lands and rehabilitation of deteriorated areas;

- Development and setting up of the natural reserves.

The State of Kuwait started also to set up a number of strategies which aim at protecting the environment and natural resources, among which there are:

- The environmental strategy of the state of Kuwait;

- A national report has been prepared concerning the aspects of benefiting from the Agenda 21 including a suggestion of preparing schemes, programs and activities in the field of environment, development and combating Desertification;

- It is expected that after the completion of the preparations of the environmental strategy, various strategies concerned with environment and development will be prepared.

Regarding the establishment of the Environment Public Authority (E.P.A) and public policies on environment protection, it is approved that E.P.A is the official authority responsible for the follow-up and implementation of this Convention and other international conventions related to the environment. On this basis, the E.P.A has established the National Committee to Combat Desertification which was assigned to study the Convention, follow-up all subjects related to it, evaluate Desertification activities, prepare national action programs and a strategy according to the Convention's articles and the Asian Annex.

The Committee held several meetings to prepare the setting up of the national action programs and the strategy. UNDP/UNSO has helped in the preparation of the work plan, sponsored by ERA, containing the way of preparing the national work programs which are supposed to conform and harmonize with the general strategic and planning frame of the State of Kuwait in the field of environmental protection and renewing natural resources' development. They will be linked and complementary with subregional and regional working programs concerned with Combating Desertification and reducing the effects of aridity.

At subregional level, the State of Kuwait has participated in preparatory meetings held in Damascus, Muscat and Dubai in order to set up programs concerned with Combating Desertification in the West-Asian countries, taking into consideration that suggested programs should harmonize with the national working program that is currently under preparation.

E.P.A participates also in meetings and implementation of the Desertification program committee activities, subsidiary of the Arab Ministers Council, responsible for the environment affairs.

At the regional level, the State of Kuwait has participated in preparatory meetings to set up a Desertification Combat program networks for Asia in order to get benefits from these networks and render them harmonious with the national needs in this field.

Furthermore, from the legislative and executive side, E.P.A has studied the actual state of the environment and natural resources. Through analysis of available information, data and the past laws and decisions, it was noticed that there is a need to improve and reformulate laws and decisions by determining standards and environmental stipulations to protect and promote the environment and natural resources.

Among those new laws are:

- Stopping gravel derivation works law;

- Organizing sand derivation works law;

- Organizing pasture law;

- Constructing natural reserves law;

- Environmental Impact Assessment law.

The state of resources and the past experience in the field of environment and renewing natural resources protection and development were studied in order to get the benefit the preparation of national working programs to Combat Desertification, to avoid disadvantages and enhance positive sides. A database was established for each authority involved in combat of Desertification, and they will be connected among a complete information network in the future.

The most important applied works fulfilled by the state of Kuwait in the Desertification Combat are as follows:

- A great number of laws and decisions have been issued aiming at protecting the environment and natural resources;

- State support to agricultural sector, animal and plant;

- Construction of a number of green belts and establishing a forestry plan;

- Afforestation of sites affected by sand encroachment;

- Constructing nurseries specializing in the production of forests trees;

- Pastoral wealth has been defined and evaluated;

- Animal riches have been determined;

- Rehabilitation of deteriorated lands and range lands;

- Establishment of reserves, fenced areas and natural parks;

- Carrying out studies and research about sand movement and its accumulation, sandstorm phenomenon, surveying soil, documenting wild life and using satellite and radar images for observation and evaluation works.

The State of Kuwait cares also about the rehabilitation and building capacities, spreading awareness in the field of Combating Desertification and decreasing the effects of aridity and this to all concerned national stakeholders.

While from the institutional side, specialized departments have been formed among the EPA and a law for that matter was issued that determines their field of action, their jurisdiction, their policies and their general objectives among which Desertification Combat and resources' protection is featuring as a main responsibility. Since 1996, the date of their establishment, these departments have been working in coordination with the National Committee for Desertification Combat to define priorities, measures and activities which are classified among national working program. Concerning financial resources and national budgets related to the implementation of the Convention, the State of Kuwait designated budget approbation to every authority working in the field of Desertification Combat (agriculture, range lands, researches, studies, protection of environment, etc.).

However, the awareness raising programs are financed by a symbolic participation of various authorities, either governmental or private, in addition to local banks and different private sector companies.

The State of Kuwait does not get any external support to prepare the national working program for Combating Desertification; it needs a technical and scientific support to Combat Desertification and decrease aridity effects. These needs will be defined in detail among the National Working Program of the State of Kuwait.

KYRGYZSTAN

1. The profile of country, strategies and priorities established within the framework of sustainable development plans and/or policies

The accession of the Kyrgyz Republic to the United Nations Convention to Combat Desertification is registered in the United Nations on 19 December 1997. In Kyrgyzstan the Convention was ratified on 21 July 1999.

Kyrgyzstan ratified the Convention later than other Central Asian republics: there was a long debate in Ministerial circles whether desertification can exist in the mountain country, rich of water resources.

To facilitate the decision-making process, the first National Awareness Seminar was called in Bishkek with the UNCCD secretariat support on 10-11 September 1997.

The Government entrusted the organization of the Seminar to the Kyrgyz Research Irrigation Institute. Seventy-two participants of the Seminar represented all layers of the population of the Republic - from farmers to the Government. The conclusion was clear: desertification factors are present; the ideas and problems of the Convention are actual for the Republic.

According to the reports of the participants of the Seminar, the general area of territory of Kyrgyzstan of about 20 mln. ha, consists of 10.6 mln. ha of agricultural land, including about 9 mln. ha of pastures, 0.84 mln. ha of forests, 1.36 mln. ha of tillage. About 40 per cent of pastures are degraded; the area of forest plantations was reduced from 1.2 mln. ha in 1930 to 0.84 mln. ha in 1996; 0.77 mln. ha from all of tillage is subject to water and wind erosion; 0.2 mln. ha is salted, 0.03 mln. ha is water logged and swamped.

The scale and pace of land degradation are excessive. The adoption of the purposeful governmental policy oriented to mobilizing all internal resources and the external assistance is necessary. The Convention provides in this plan a unique chance.

At the first National Forum, the Conception of the National Action Programme to combat desertification in Kyrgyzstan was approved. It identified the following priorities of activities:

- Information of the population about the desertification processes, and their possible consequences; enlightenment on the practices, methods and technologies of use of the land and water resources with a view to prevent desertification;

- Institutional measures with a view to strengthening the management system, contributing to the local initiative development and ensuring employment;

- Improving of the degraded lands in the Kyrgyz Republic with a view to prevent salinity, water and wind erosion of soils, as well as to increase the land productivity for the rural economy rising and poverty eradication;

- Reconstruction of the pasture potential and livestock breeding development;
- Enhancing of the forest areas of the country - forest restoration with a purpose of the slope and light soils fixation; increasing of the water content of upper watershed;

- Monitoring of desertification, creation and supporting of the sustainable process of combating desertification.

2. The institutional measures taken to implement the Convention

Political, state and legislative systems of the country are being examined to evaluate the institutional capacities to implement the UNCCD.

The Ministry of Environmental Protection of the Kyrgyz Republic (further - Ministry) is the central body for the state management of the protection of the environment, hydrometeo forecasting, control of their condition and rational use of natural resources.

Apart from the Ministry of Environmental Protection, the Ministry of Agriculture and Water Resources, which is in charge of land management and irrigation, plays a key role in combating desertification.

Costs of protection and management of forests are met by the State Forest Agency.

The State Agency on Land and Land Resources was established to introduce a land cadastre, monitor the state of land resources, preserve and upgrade their quality and enforce the land legislation and regulations.

The Ministry of Emergency Situations and Civil Defense of the Kyrgyz Republic is the central body of the executive power, which supervises and coordinates the activities in the field of:

- Prevention and liquidation of emergency situations;

- Civil defense;

- Mobilization of the economic sectors of the Republic.

For the coordination of activities in the Republic and for liaison with the CCD secretariat, the Office to Combat Desertification (UNSO/UNDP), Committee of Science and with UNITAR the Kyrgyz National Center to Combat Desertification - Kyrgyz NCCD - was created at the Kyrgyz Research Irrigation Institute of the Ministry of Agriculture and Water Economy of the Kyrgyz Republic.

At the First National Forum (2-3 November 1999) the Coordination Board (CB) on UNCCD was established in Kyrgyzstan at the Ministry of Agriculture and Water Resources.

The Coordination Board is a body for the UNCCD implementation in Kyrgyzstan and executes the following functions:

- Considers the issues of the participants identification and selection of priorities, informational, institutional and financial maintenance;

- Submits proposals to the Government, Jogorku Kenesh, international organizations;

Chairman of the CB	Minister of the Agriculture and Water Resources of the Kyrgyz Republic;
Deputy Chairman	Vice President of the Congress of Local Communities;
Deputy Chairman	National coordinator for the UNCCD;
Members of the CB	representatives of the Ministries and Departments, Programs and Projects, Local Bodies, non governmental and community based organizations, mass media.

The analysis of the institutional infrastructure lead to the conclusion that at the first stage there is no need in changes and innovations. It is most important to work out the concept of CCD implementation and to define the UNCCD interaction with existing structures, to link NAP/CCD to the projects already implemented in Kyrgyzstan, and to the laws of land using.

3. The participatory process in support of the preparation and implementation of the action programme

The effectiveness of CCD implementation, directed to the improving of the living conditions of the planet population will depend on the awareness of people about CCD, and about efforts of the states in its implementation.

Ministries of the Justice, Finance, Agriculture and Water Economy, Protection of the Environment, Health, Emergency Situations and Civil Defense, Foreign Affairs participated in the process of country's accession.

After coordinating with all Ministries the Decree about acceptance of the Law of the Kyrgyz Republic «About the Accession of the Kyrgyz Republic to the UN Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or desertification, Particularly in Africa » No 1372-1 of April 23, 1999 and Law of the Kyrgyz «About the Accession of the Kyrgyz Republic to the UN Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or desertification, Particularly in Africa » No85 of July 21, 1999 were adopted and approved by the Assembly of the Jogorku Kenesh.

Mass media was actively used for the awareness raising about the UNCCD.

A number of the republican newspapers published articles about problems of desertification, pastures degradation, land salinization, wind and water soil

erosion, loss of the forests and effective measures for the solution of those problems.

Some video films devoted to the above problems were also made.

The following institutes are participating in the NAP process in the Kyrgyz Republic: Institute of agriculture, Institute of forages and pastures, Institute of Forestry, Institute of irrigation, Institute "Żyrgyzhyprozem", Institute "Żyrgyzhyprovodhoz". These institutes are involved in the programs and projects connected with the rational land tenure and protection.

The main NAP participants will be the land cultivators, farmers, peasants agricultural cooperatives.

The most active part in the NAP development was taken by the following NGOs: Aleine, Socium, AARY, SOS - Land, Counterpart Consortium.

Without due coordination, work of the Kyrgyz NCCD and the activities of NGOs and CBOs can not give positive results.

Therefore at the Kyrgyz NCCD the Coordination Office for work with NGOs and other structures (CO NGOs) was organized. CO NGOs is equipped with necessary literature, visual materials, office equipment, video-technic, and is open for all interested parties, including NGOs.

In July-August two Regional Workshops were held. The purpose of the Workshops was the identification of main desertification problems at the local level. The Workshops have shown that the NCCD of Kyrgyzstan selected correct tactics to start combating from the rayon level, to search for ways of land users activation, and further promoting to the national level.

The first National Forum was also convened (2-3 November, Bishkek). As a result of the National Forum, the Conception of the National Action Programme to combat desertification in Kyrgyzstan was adopted.

4. The consultative process in support of the preparation and implementation of the National Action Programme and the partnership agreement with developed country Partners and other interested entities

At the initial stage of the NAP preparation and implementation, when there are no particular proposals and requests for donor assistance, the external support is expedient for planning within the framework of the prepared in the republic projects under the line of the World Bank, ADB, TACIS, etc.

For example, under the World Bank pilot project (US$3,5 mln.) on Forestation, Erosion Control and Water Management, forest planting and erosion protection technologies of irrigation are being used to protect land in the Jalal-Abat oblast against land erosion and landslides. The Finnish Government has approved a project (US$300,000) under the line of the International Fund for saving the Aral Sea.

Other examples are the small grants (UNDP) projects, programme for the preparation of the International Year of Mountains in 2002, programmes for irrigation and agriculture of the World Bank and ADB.

The national coordinator presented the plans of the UNCCD implementation in 10-13 May 1999 in Bishkek at the International Conference of the Mountain territories problems with the participation of official representatives from Switzerland, Germany, Turkey and Nepal.

Under the attention of the NCCD, there are future projects of the creation of Water Users Associations and on farm irrigation (US $20 mln. from the World Bank) and agricultural development in the Chui oblast including the improving of the meliorative condition of lands (US $40 mln from the ADB).

Under the UNCCD secretariat initiative and with financial support by GTZ, Kyrgyzstan will be host of the Meeting on the preparation of the Subregional action Programme to combat desertification in the Aral sea basin in the context of the UNCCD.

The Kyrgyz institutes are also active participants of the TPN1, TPN2, and are planning to participate in the TPN3, TPN4, TPN5.

5. **The measures taken or planned within the framework of the national action programmes, including measures to improve the economic environment, to conserve natural resources, to improve institutional organization, to improve knowledge of desertification and to monitor and assess the effects of drought**

The Land State Program for the period till 2005 provides the following basic directions for the rational use of the land resources and its protection:

- Measures to improve the use and protection of land resources;

- Implementation of the state control of the land use and protection with the purposes of observance of the land legislation of the Kyrgyz Republic;

- Establishment of the unified system of the land cadastre and registration of the lands and real estate, and creation on their basis of the full land database;

- Implementation of the land monitoring;

- Creation and conducting the control system of land resources;

The Agricultural Lands Monitoring Program of the Kyrgyz Republic for the period 1999-2005 and consequent years is developed pursuant to the Land Code of the Kyrgyz Republic.

The main tasks of the land monitoring for the period 1999-2005 and the consequent years are:

- Formation of the normative - legal and scientific - methodical bases of the lands monitoring;

- Zoning of the territories of the Kyrgyz Republic with allocation of negative processes by kinds and degree of their effect on the land condition;

- Establishment of information base for the land monitoring.

Some main tasks of the Forest National Program for the period 1995-2000 in the field of the forest reproduction are:

- Recovery and improving of protective functions of all forests of the Republic;

- Strengthening water protection, climate-regulation, and other natural properties of the forest in the interests of health of the people, better environment and economic development;
- Cultivation of the planting material for maintenance of forest production and with the gardening purposes;

- Rational use of state forest fund lands;

- Implementation of measures assisting the natural restoration of forest by the appropriate methods to natural conditions;

There is the Araket Poverty Eradication National Program (1998-2005). The constant increase of a standard of living and poverty eradication in the Kyrgyzstan is put forward as the main priority of all economic, financial and social policy of the State, ultimate goal of the reforms in the country.

The mass poverty eradication covering almost the half of the population of the Republic, is the long-term strategic problem; its solution depends on the success of reforms and on reaching the main objectives of the perspective plan of socio-economic development of the country.

On the basis of the analysis of scales, causes and structure of poverty the present National Program determining main ways and methods of it eradication in the country is developed.

The main share of poverty falls on the village population of the country. It is due to the fact that in the village district live 2,7 min. people, or more than 60 per cent of the republic population.

In 1996 the National Plan of the Environmental Protection was established. It is recognized that especially in the key sectors (agriculture and mining industry) exist a number of important environmental problems which are connected with economic growth and development. In this connection special attention is given to the issues of land resources. The causes of land low efficiency in the context of agricultural production, management of live-stock farming and forest economy are being considered.

6. Financial allocations from national budgets in support of implementation as well as financial assistance and technical cooperation received and needed, identifying and prioritizing requirements

Due to economic and social difficulties of the transition period, there has been a dramatic decrease in the state financing of the activities to tackle desertification. In view of this, activities to combat desertification should rely on innovative sources of financing and on resources generated by the affected farmers and private sector.

At present, there are two major sources of state funding of environmental protection: (i) the Republican budget and (ii) extra-budgetary income formed *basically from* fines and environmental taxes.

In order to generate long-term investments for infrastructure development and public services, a three-year rolling Public Investment Programme (PIP) has been recently introduced and implemented. The main focus of the PIP is on investment in public infrastructure and services such as roads, telecommunications, energy, urban infrastructure, health, education, agriculture and environmental protection. The major share of financing for PIP is sought from external funding agencies on concessional terms. Domestic financing is severely constrained and is expected to be limited primarily to financing local counterpart contributions within externally financed projects.

International financing provides only short-term assistance. However, it is vital that more sustainable mid- and long-term financial mechanisms are sought for continuing land protection.

The proposed national financial mechanism for UNCCD is the National Desertification Fund (NDF) administered by the Steering Committee consisting of the high-level representatives of the government agencies and ministries involved, wide layers of civil society, including NGOs and CBOs, local authorities, donor community, academic and educational institutions. This fund will potentially become an important internally-funded instrument for combating desertification and related environmental issues.

At present the following programs are financed from the National budget: Land, Forest, Araket, Agricultural Lands Monitoring Program (see para. 5).

In support of the NAP preparation, through the UNCCD secretariat it was received:

- In 1997 - US$8,000 for holding the National Awareness Seminar on CCD and accession of Kyrgyzstan to UNCCD;

- In 1998 - US$26,300 for support and strengthening of the National Centre to Combat Desertification;

- In 1999 - US$50,000 through UNSO/UNDP for preparation of the First National Forum and definition of the Conception and NAP structure.

The financing and administration of the projects were conducted successfully through local UNDP Office in Bishkek.

The obtained financial and methodical support from the UNCCD secretariat and UNSO has helped Kyrgyzstan to advance considerably in understanding the CCD by the population and state bodies, involving stakeholders in process of the NAP preparation. The appropriate reports have been presented to the UNCCD secretariat, UNSO and donors.

In 2000, through the UNCCD secretariat, US$33,000 are received for the project on strengthening the focal point.

Kyrgyzstan has problem of the fund searching for the NAP completion and convening the Second National Forum in the second half of 2000. The

correspondence with donor countries is conducted: Finland, Japan, Switzerland.

For the NAP completion and realization of the Second National Forum US$50,000 is needed. In this regard consultations with ADB are conducted. The preliminary consent is obtained.

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SUMMARIES OF REPORTS SUBMITTED BY AFFECTED ASIAN COUNTRY PARTIES

Addendum

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LEBANON

The Republic of Lebanon is situated on the eastern shores of the Mediterranean. It covers a total area of 10,452 km² most of it being mountainous. The Mount-Lebanon and the Anti-Lebanon chains run parallel to the sea, separated from each other by the Beqaa plain. The population of Lebanon is estimated to be around 4 million, of which around 1 million are foreigners.

Lebanon's climatic conditions are determined by its geography and physiography. They vary from a Mediterranean climate along the coastal plain and in the middle mountain range, to reach the sub-alpine or montane Mediterranean climate on the highest slopes, covered by snow during most of the year; they become sub-desertic and almost too dry for agriculture in some of the northern plains.

As in most countries exposed to the Mediterranean climate, most of the precipitation falls between November and March, in the form of heavy showers. The mean annual rainfall on the coast ranges between 700 and 1,000mm; it peaks in the central mountains at 1,600mm; it ranges in the Beqaa plain from 200mm in the north-eastern part to 800mm in the southern part; while on the Anti-Lebanon chain it ranges from 600mm to 1,000mm in the Hermon.

The different ecosystems in the country are mainly threatened by deforestation, over-grazing, urban development, road development, bad agricultural techniques, excessive use of chemical products, over-hunting and industrial development.

The rural exodus has had impacts on land degradation, as abandoned agricultural lands are easily eroded. The war situation which prevailed in the country during several years has enhanced poverty, mainly in some remote rural areas.

Lebanon has to face the new challenges and policies of the third millennium, with new markets to deal with. The Ministry of Agriculture has therefore prepared a strategy for the development of the agricultural sector. This strategy aims mainly at improving the quality of crops produced, the production of new crops and the utilization of better and more efficient irrigation techniques. The strategy has not been implemented yet. It includes training, reforestation, information gathering and database management, agricultural infrastructure and economic and social plans.

After several years of total lack of control imposed by the war situation in the country, the Government of Lebanon has realized the importance of linking the environment to the overall development process. Initiatives are launched to save natural patrimony and promote protection and proper management of natural resources.

As soon as countries affected by drought and desertification were called for signature and ratification of the Convention to Combat Desertification, the Government of Lebanon, through the Ministry of Agriculture, answered the call. The CCD was signed in September 1995 and ratified in December 1995.

The Ministry of Agriculture is in charge of the implementation of the UNCCD in Lebanon and hosts the National Focal Point.

An Umbrella Project document was prepared with the assistance of UNDP and FAO. It led to the preparation of a project document with the assistance of UNDP aiming at the preparation and implementation of the NAP and its activities. It was pending till now because of the lack of funding from the Government. At the time of submitting this report, the decree authorizing the transfer of the Government contribution to the project is in its final stages of signature. The project will therefore be starting soon.

Another project will be providing support to the preparation of the NAP through remote sensing and GIS techniques. It will be implemented with the German development agency, the GTZ, the Arab Centre for Scientific and Agricultural Development, ACSAD, the National Centre for Remote Sensing and the Ministry of Agriculture, Rural Development and Natural Resources Directorate. It is financed by the German Government with an in-kind contribution from Lebanon.

Although the Ministry of Agriculture is the designated authority in charge of implementing the UNCCD in Lebanon, several stakeholders involved in the management of natural resources have an important role to play in this issue.

The Government is working on the rehabilitation of several sectors affected by the war and its consequences and on stopping the degradation of natural resources. International organizations are assisting this process by providing technical and financial support to specific projects.

Before the establishment of the Ministry of Environment, the Ministry of Agriculture was in charge of preparing and implementing all laws and legislative processes relating to natural resources. First forest legislation was written in 1949. Decrees and laws were added. Legally, the Ministry of Agriculture can develop laws that are subject to the Government's approval as well as Ministerial Decrees and decisions (such as the deployment and training of forest guards).

After its establishment, the Ministry of Environment took over the preparation and implementation of legislation on many of the issues related to natural resources. However, the Ministry of Agriculture is still in charge of many other aspects.

One of the main problems in the implementation of the UNCCD in Lebanon is the financial aspect. The Government's support to the Ministry of Agriculture constitutes less than 0.5 per cent of the total Government budget. This financial problem has delayed the implementation of the UNDP-Ministry of Agriculture Project for three years.

Several international organizations grant financial support to assist in the rehabilitation of the natural resources sectors of the country, through capacity-building, project implementation and technical assistance. These organizations are: World Bank, FAO, GTZ, UNDP, French Government, US Loans for Livestock, IFAD, EU, GEF. Other organisations are also involved.

Despite the fact that it was one of the first countries in the region to have signed and ratified the CCD, and despite the leading role it played on the regional and subregional level, Lebanon has not started preparing the NAP yet.

However, as soon as the necessary budget is allocated and both UNDP and GTZ projects are initiated, the process will be moving forward steadily.

In the absence of a NAP, the Umbrella Project, the UNDP and the GTZ projects are briefly described.

Through the participatory approach, projects will coordinate with all other ongoing projects in order to avoid any redundancy. None of the ongoing projects deal directly with the issues and components proposed by this project; however, as combating desertification is a broad and wide spread subject, it will have to draw information and eventually ask for some cooperation from those projects.

The Government of Lebanon, through the capacity of the Ministry of Agriculture, will provide the necessary space, equipment and facilities for the implementation of project activities. It will make available personnel, national consultants and experts whenever necessary.

The Government of Lebanon is committed to the UNCCD. It will not spare any effort to move forward towards the implementation of the NAP and the activities it is proposing.

MALAYSIA

INTRODUCTION

Soon after the independence, Malaysia launched an aggressive programme to develop its agricultural sector as part of the overall efforts to develop the nation. The decision to develop its agricultural sector was perhaps the most logical course of action to be undertaken, as land was the most important resource of the country; it was abundant readily available. The main thrust of the development was directed at the conversion of large tracts of forest land into agricultural land for the cultivation of important economic crops.

In the nineteen sixties and seventies, the development of land was concentrated mainly on land with favorable topography, However, in recent years, as much of such land has been utilized, the encroachment into the steep areas has become inevitable. In fact, in many places in the peninsula, steep areas have been opened up to meet ever-increasing demand for land although under present circumstances, such areas not recommended for agricultural development. With topographically suitable land being used up rapidly in all the states in the peninsula, the infringement of the steep areas is expected to escalate to a phenomenal level, which if left unchecked, can cause alarmingly adverse effects to the environment. This has created the necessity to examine steep areas in greater detail and to scrutinize to what extent such land can be utilized effectively and profitably for food production without causing undesirable damage to the environment.

PHYSICAL ENVIRONMENT

Location

Peninsular Malaysia is situated between the equator and 8° North latitude and longitudes 99° and 120° East. It is bordered in the East by the South Chine Sea and to the West by the Straits of Malacca. The greatest length, which runs from

the northwest to the southeast, is 736 km and the maximum width is about 320 km. The peninsula has an area of 13.2 million ha of land.

Physiography

The physical relief is dominated by the Main Range, which runs almost centrally along the middle of the peninsula. The Main Range rises to a height of beyond 2,200 meters above sea level. Secondary ranges that fan out from it, mainly in the northern half of the country are the Kedah-Singgora Range, the Gunong Bintang Range on the western side while the Gunong Benom Range, the Gunong Tahan Range and the East Coast Range are to the east of it. From these mountain ranges, rivers flow through hilly and rolling lowlands towards the floodplains, coastal flats and beach ridges.

Climate

Malaysia has a hot humid climate, which can be classified as subtype Afi (tropical rainforest) of Koppen's classification. In the extreme northwest of the peninsula, where a distinct dry spell is present from the months of December to February, the climate tends to be Am (tropical monsoon). The annual air temperature is generally over 24° Celsius while the main annual rainfall is over 2000 mm. In general, the mean annual rainfall in most of the highlands (above 300 m a.s.l.) ranges from 2,000-2,200 mm and is quite similar to that of the national average. The highlands in Peninsular Malaysia do not receive significantly higher rainfall than the lowlands. Moisture availability is, however, higher due to lower evaporation. The soil moisture regime is udic below 300 m a.s.l. and perudic above this elevation. The soil temperature regime is isonyperthermic (>22°C) up to 1,200 m a.s.l., isothermic (15-22°C) between 1,200 to 1,600 m a.s.l. and isomesic (<15) at elevations exceeding 1,600 m a.s.l..

Vegetation

The primary vegetation from the lowlands to the highlands can be grouped into four floristic zones. The family Dipterocarpceae dominates the lowland forests below 300 m (about 1000 ft). The group Shorea is evident at this altitude. Between 300 m and 800 m (1,000 -2,500 ft), the Hill Dipterocarp appears. The upper Dipterocarp occurs between 800 m and 1,200 m (2,599-4,000 ft) and Oak-Laurel forests are found between 1,200 m and 1,600 m (4,000-5,000 ft). Above 1,600 m (5,000 ft), the Montane Ericaceous forests occur. Generally, the tree fern Thelypterus chlamydophora is commonly found above 300 m.

Soils

A wide range of soils is found in the steep areas from an elevation of 76 m a.s.l. to beyond 2,000 m a.s.l., representing major differences in parent material, climate, vegetation and terrain conditions. A climo-biotoposequence study of soils derived from granitic parent materials (Paramananthan, 1977) in the Cameron Highlands illustrates the influence of these major factors on soil formation. The soil survey of the KESEDAR Region (Lim et al, 1980) provided a wealth of information on soils on steepland dominated by shale parent materials. Ad hoc soil surveys in other states have also yielded information on the nature and properties of soils on the steep areas.

SOIL AND WATER CONSERVATION ACTIVITIES

1. Preparation of Erosion Risk Map

The Erosion Risk Map is a map showing an estimation of the total soil loss due to erosion on area without agronomic and conservation practices (worst case

scenario) at various terrain classes using Universal Soil Loss Equation Method(modified) and Geographical Information System. The Erosion Risk Map available at present was prepared using the reconnaissance soil survey map as the base map, This map is useful to planners in predicting the average rate of the potential soil erosion and to recommend soil conservation measures to reduce soil loss within permissible limits. The process of preparing the Erosion Risk Map using the semi-detailed soil map was started in 1999. This process is being done by stages according to the completion of the digital data of the semi-detailed soil map.

2. Preparation of Agroclimatic Map

The Agroclimatic Map is the map showing the various zones with the same duration of moist/wet months and zones with similar duration of moist/wet different month. The available Agroclimatic Map was prepared in 1992. At present, this map is being improved whereby in the computation, available soil moisture in the top 100 cm of the soil (formerly 50 cm only) is added to 80% probability rainfall for the following month to calculate monthly balance of that month. In addition rainfall data for the period 1966-1996 covering 580 rainfall stations (formerly 340 station only) in the country are used in the calculation. The map is still in the modeling process using GIS ARCINFO Version 7.1. Agroclimatic map is useful in the determination of the suitable planting time for various crops and also to determine the types of crops suitable for an area.

3. Preparation of Terrain Class Map

Terrain class map is a map showing the various terrain classes in an area. The Digital Elevation Modelling of the GIS ARCINFO Version 7.1 is used to generate the terrain map of an area using digital semi-detailed soil map data. Terrain information is an important input in the determination of surface related applications such as soil mapping, soil suitability assessment, soil conservation practices and other agricultural and non-agricultural applications.

4. Preparation of Watershed Map

The purpose of preparing the Watershed Map is to study the land use pattern with time. Ultimately, hydrological studies involving water quality, sediment yield and other relevant studies will be carried out. All the major watershed areas in Peninsular Malaysia will be mapped out. Currently, Sg. Selangor watershed area, Sg. Bernam watershed area and Sg. Langat watershed area have been prepared. As usual, ARCINFO Version 7.1 is being used to overlay the landuse map over the watershed area concerned.

5. Database Development for Soil Physical Properties

The development of data base is merely the compilation of the soil physical properties as a result of the soil conservation activities, such as the determination of the soil erodibility using the portable rain simulator, determination of the soil infiltration rate using the double ring method and the sampling of soil for determination of physical properties using brass core method. The soil physical properties that are of interest are the bulk density, particle density, total porosity, hydraulic conductivity, moisture content, infiltration rate and the soil erodibility. Such properties are useful for the preparation of the erosion risk map, agroclimatic map, development of soil management guidelines, and other hydrological studies that will be carried out later.

6. Study of Soil Erosion for different soil types, crop groups and terrain classes

With the use of the Soil Erosion Gauge (designed locally) we are able to estimate the amount of soil loss over an area with different soil type, crop type and terrain class. Hence comparison of the soil loss in tons per hectare per year can be studied at different parameters. The study will be carried out for 1-2 years at different soil types and terrain classes through out the country.

7. Demonstration plot showing conservation structures and agronomic practices

These plots have been constructed in the farmer's land where there is existence of sloping area. The purpose of these demonstration plots is to show to the farmers the type of conservation structures that have to be made for different slope classes and different crop groups. At the same time, the necessary agronomic practices that have to be carried out will also be shown. This plot will be the focal point for farmers having sloping land for agricultural purposes.

8. Preparation of Development Plan for Agriculture on Sloping Land

Soil erosion and land slide have been a menace to most agricultural areas on sloping land in Malaysia. Soil erosion becomes serious problem on slopes more than 25 0 . Removal of ground covers on steep slopes will invariably result in rapid and excessive soil erosion leading to soil degradation. This in turn will lead to siltation of rivers and flood at the lower catchment areas. On the other hand, the soil conservation and agronomic practices to a smaller extent are not being adopted by the developers/planners in some areas. Considering all the above, the Development Plan for Agriculture on Sloping Land degradation is being prepared for districts with high percentage of sloping land to assist the planners and developers in identifying the areas that can be developed for agriculture based on two criteria as follows:

- Elevation. The National Forestry Council, through the National Forestry Act has made the decision that forest at elevation more than 1000 meters must be gazetted as soil protection forest and water catchment forest.

- Terrain class. The Department of Agriculture, through the Guidelines for Developing Sloping Lands, has stated that sloping lands more than 25°(falls under Terrain Class C6) should not be developed for agriculture. Such areas are extremely difficult to work on and are highly susceptible to soil erosion and landslides when exposed.

9. Training and Extension Programmes

The Department of Agriculture will still continue to play the role in the transfer of knowledge to the farmers. In this action plan, the transfer of knowledge will concentrate on the issues pertaining to the package technology for agriculture development on sloping land as follows:

1. Guidelines for land clearing for various crop groups and slopes.
2. Guideline for construction of soil conservation structures for various crop groups and slopes.
3. Guidelines for agronomic practices to combat erosion, for various crop groups and slopes.
4. Farmers visit to demonstration plots showing the various soil conservation structures and agronomic practices for various crop groups and slopes.

RELATED AGENCIES AND INSTITUTIONS

Several institution and agencies are involved in the implementation of the soil conservation and land degradation programmes. The related parties are as follows:

1. Department of Agriculture
2. Department of Irrigation and Drainage
3. Department of Environment
4. Department of Forestry
5. Federal Land Consolidation Rehabilitation Authority
6. Federal Land Development Authority
7. Rubber Industry Small Holders Development Authority
8. Forest Research Institute of Malaysia
9. Rubber Research Institute of Malaysia
10. Malaysian Agriculture Research and Development Institute

RELATED LAWS AND REGULATION

The related laws and regulations are as follows:

1. The National Land Code, 1965
2. The Land Conservation Act, 1960
3. The Environmental Quality Act, 1974
4. The National Forestry Act, 1984

FORMULATION OF NATIONAL ACTION PLAN

Most probably, the Focal Point will make arrangement for National Workshop in early 2001 to discuss the formulation of the national action plan.

NATIONAL FOCAL POINT

As stated in the website of the UNCCD, the National Focal Point is as follows:

Mr. Mohd Zulkifli Mohammad,
International Unit,
Ministry of Agriculture
Kuala Lumpur, Malaysia.

MYANMAR

Introduction

Myanmar is situated in South East Asia and is identified as a country affected by desertification. Arid and Semi-arid region of Myanmar known as Dry Zone is located in the central part of the country. About 10 per cent of the total land area of the country is in the Dry Zone and about one third of the total population live in this area. Eighty one per cent of it, is rural. Agriculture land productivity is adversely affected by population pressure, cropping on inherently poor and fragile soils. The dry zone also has low forest cover. The decline in the extent of forest cover area particularly in the dry zone of central Myanmar is attributable to excessive cutting of fuel wood due to population growth, inadequate supply and high cost of non-wood energy sources and inefficient utilization of woodfuel.

The Government has been making efforts to combat land degradation for many years. The Ministry of Agriculture and Forests established Agriculture and Rural Development Cooperation (ARDC) in 1953 and initiated reafforestation programmes in the Dry Zone. ARDC achieved significant success especially in greening Mount Popa which has now become an oasis in the centre of the dry zone and an ecotourism site.

With a view to intensify activities to combat desertification and drought in the arid zone, the Government launched a national Programme in 1993-94. The 3-year Greening Project for the Nine Critical Districts of the Arid Zone has been implemented by the Ministry of Forestry in cooperation with the related ministries.

Recognizing the importance of international cooperation in combating desertification, the Union of Myanmar signed the Instrument of Accession and became a party to the UNCCD in April 1997.

Preparation of the National Report was initiated by the National Commission for Environmental Affairs (NCEA) and the efforts were intensified in December 1999 with the formation of a Steering Committee comprising 21 members from the various departments and agencies concerned. The National Report is being prepared with the active participation of the various line ministries and departments as well as the NGOs. A workshop will be convened at the end of April to discuss the report in detail.

Activities for Combating Desertification in Myanmar

1. In order to focus entirely on and speed up greening activities in the dry zone, the Dry Zone Greening Department (DZGD) was established under the Ministry of Forestry in September 1997. The DZGD has been implementing programmes and activities to combat desertification in the dry zone in accordance with the Myanmar Forest Policy 1995 which sets out six imperatives, including protection of soil, water, wildlife, biodiversity and environment; sustainability of forest resources to ensure perpetual supply of both tangible and intangible benefits accrued from the forests for the present and future generations; basic needs of the people for fuel, shelter, food and recreation; efficiency to harness in the socio-environmentally friendly manner, the full economic potential of the forest

resources; participation of the people in the conservation and utilization of the forests; public awareness about the vital role of the forests in the well-being and socio-economic development of the nation.

2. Under the Greening Project, the annual plantation target of 35,000 acres is to be carried out over the period from 1997-1998 to 2000-2001. In 1998-1999, DZGD planted a total of 35,287 acres comprising 18,280 acres of village forests, 8,920 acres of watershed plantations, 2,900 acres to green mountains, 137 acres for research purpose and 5,050 acres of woodlots. Under the Dry Zone Master Plan a target has been set to plant 1050,000 acres during the 30-year period from 2001-02 to 2030-31. In 1999-2000, DZGD planted a total of 35,040 acres comprising 13,257 acres of village forests, 14,700 acres of watershed plantations, 2,700 acres to green mountains, 133 acres for research purpose and 4,250 acres of woodlots.

3. About 1.82 million acres of degraded forests and about 2.8 million acres of forest have been identified in the Dry Zones as affected by shifting cultivation. Protection against human interference and fire has been found to be very effective in improving degraded forest. Degraded forests considered to be capable of improving naturally are, therefore, protected by forests guards permanently stationed along the borders. Fire lines and inspection paths are constructed for efficient fire prevention. Of these, priority areas are identified and a total of 100,000 acres of natural forests had been especially protected each year since 1997-98. Natural Regeneration method was implemented in 10,000 acres in 1997-98, 15,000 acres in 1998-99 and 20,000 acres would be implemented in 1999-2000.

4. Illegal cutting of trees for firewood and charcoal has been one of the major causes of deforestation and forest degradation in Myanmar. In support of forest protection and conservation, fuelwood substitution has been identified as a main task of the DZGD. Three activities are included in this task, namely, (a) Distribution of fuel-efficient stoves; (b) Promotion of fuel briquette production and utilization; (c) Utilization of agricultural residues. Community Multi-purpose Fuelwood Woodlot Project was one of the UNDP/FAO funded projects which established a number of fuelwood woodlots and village nurseries in the arid zone for regreening purpose and for supplying fuelwood to local people.

5. Rain falls only for a few days annually and water is very scarce in the Dry Zone. This constitutes the biggest obstacle for greening the Dry Zone. It is thus imperative to construct check dams and ponds to collect rainwater, and to tap underground and river waters by pumping in order to promote greening activities and the local needs. In the year 1998-99, the DZGD has been able to construct 170 ponds and 12 tube wells. The Myingyan District Watershed Mountains Greening Special Project (1996-97 to 1998-99) was implemented by the Ministry of Forestry. Myingyan District is one of the driest regions in Central Myanmar. Sustainable agriculture in the dry zone of Central Myanmar has also been implemented by the Ministry of Agriculture and Irrigation including water resource management programmes and projects.

6. The Environmentally Sustainable Food Security and Micro Income Opportunities in the Dry Zone Project funded by UNDP/FAO was implemented jointly by the Ministry of Forestry, Ministry of Agriculture and Irrigation , the Ministry of Livestock and Fisheries.

7. The DZGD has also been implementing the following projects in cooperation with:

(i) Yomiuri NGO from Japan in Afforestation Project in Nyaung-Oo District;

(ii) Japan International Forestry Promotion and Co-operation Agency (JIFPRO) in Afforestation Project in Nyaung-Oo District;

(iii) Korea International Co-operation Agency (KOICA) in Dry Zone Greening Project in Nyaung-Oo District; and

(iv) Organization for industrial Spiritual and Cultural Advancement International (OISCA-International) in Greening Project in Pakkoku District.

Conclusion

Myanmar has initiated a number of approaches towards combating desertification, such as: policy and legislative measures, reafforestation schemes, community forestry, special greening projects, national tree planting campaign, promotion of the use of efficient cooking stoves.

With the availability of more financial and technical support from the international community, activities for combating desertification in Myanmar could make greater progress.

NEPAL

This report has been prepared under the guidance of the Inter-Agency Steering Committee and two working groups and the outcomes of the national seminar.

Background Information

Nepal, roughly rectangular in shape, has a total area of 147,181 sq. km and an estimated population of 22.367 million in 1999. Uneven distribution of human and livestock population has exerted pressure on natural resources, particularly on land and forests. In broader perspective, about 59 per cent of the total land is steep or very steep, and 22 per cent has moderate to steep slopes. These areas are prone to soil erosion and landslide. Nepal's intra-Himalayan high basins receive less than 500 mm of precipitation a year. Evapo-transpiration is high in the western Terai, and the ratio of annual precipitation to potential evapo-transpiration ranges from 0.02 in the trans-Himalayan region to 2.99 in high rainfall area, the Pokhara Valley. About 10,000 ha in highlands in West Nepal experience the desertification problem and areas of desert-like conditions are spreading in the trans-Himalayan region. Some areas also experience seasonal drought. Based on soil erosion and landslide information, about 13.6 per cent of the total watersheds are in very

poor to fair conditions. Furthermore, about 1.8 million tons of plant nutrients are removed by crop harvesting (0.5 million tons) and the soil erosion process (1.3 million tons) each year. Out of this, only 0.3 million tons are replenished by organic and mineral fertilizers. This has affected production of major crops which have not increased at par with the use of agri-inputs such as fertilizer, improved seeds and irrigation facilities.

The climatic and physiographic variations and fragile geology are major factors for the loss of nutrient rich top soil, landslide, and flood. The problem is compounded by high population growth, rural poverty, over-grazing, shifting cultivation and use of fertile land for infrastructure development, settlement expansion, and establishment of social service facilities. Poverty has further accelerated the land degradation problem.

In order to address these concerns, policies and programmes have been formulated and implemented with the long-term objectives of promoting sustainable use of resources to alleviate poverty and bringing different stakeholders in the mainstream of sustainable development. Nepal has also joined the international environmental movement as a Party to 16 Conventions, including the United Nations Convention to Combat Desertification (UNCCD). The UNCCD entered into force in Nepal on 13 January 1997, and Nepal is implementing the Convention by establishing its linkages with the United Nations Framework Convention on Climate Change and the Convention on Biological Diversity.

Sustainable Development Plans and Priorities

Nepal has a long-term vision of involving stakeholders in natural resource management to alleviate poverty. In the mid-1980s, Nepal further stressed the need for halting the expansion of desert-like conditions in the mountains and launched massive afforestation and soil conservation and watershed management activities. Since then, a concept of land management and sustainable resources' use has been integrated into national development plans to alleviate poverty along with the integration of environmental assessment system in major infrastructure projects. The current Ninth Plan (1997-2002) has the single objective of poverty alleviation, and it emphasizes the importance of soil and water conservation. The Plan has placed agriculture and forestry sector as the first priority. The Plan recognizes poverty and unmet needs of the people as a challenge for environmental management and sustainable development. Furthermore, the Plan also emphasizes, *inter alia*, to enhance community participation in natural resource management, and encourage cultivation of perennial crops in slopes and environmentally sensitive areas.

Nepal is implementing the National Conservation Strategy and Forestry Sector Master Plan, Agricultural Perspective Plan and Environmental Policy and Action Plan through institutional and legal reforms. The plans aim to protect land against degradation by soil erosion, floods, landslides, desertification and other phenomena of ecological imbalance. Policies and programmes related to combating desertification are also included in the draft National Agenda 21 which emphasizes the need for integrating poverty alleviation issues into the mainstream of social and economic development process by, *inter alia*, reforming land tenure system, and accelerating forest and soil conservation activities. It also emphasizes the need for strengthening the role of women, youth, indigenous people, NGOs and CBOs and individual farmers in natural resource management.

Land related issues have also been a part of sectoral policies such as of forestry, hydropower and irrigation, industry, tourism and housing sectors. Recently, policy directives have been issued to enact legislation, and develop procedures for the implementation of the Conventions. Prior to UNCCD, the problems of desertification and desert-like conditions were recognized, and His Majesty's Government of Nepal (HMG/N) formulated policies and programmes to discourage cultivation in marginal land encouraging people at the same time, in converting such land into forest and grazing fields. Besides the policy formulation and implementation, Nepal has a long tradition of natural resource management, and this indigenous practice has been promoted for community participation through policy and legal measures. In a nutshell, the strategic thrust is to alleviate poverty, ensure sustainable use of natural resources, and minimize pressure on land and water systems with people's participation, and enhance involvement of NGOs, CBOs, women and youth.

Institutional and Legal Measures

- **National Coordinating Body**

In the process of integrating environmental aspects into development programmes, HMG/N established the Ministry of Population and Environment (MOPE) in September 1995 which acts as the National Coordinating Body (NCB) for environmental matters and Conventions. The Ministry functions as a monitor, facilitator and coordinator and is also responsible for, *inter alia*, the formulation and implementation of policies, plans, programmes and legislation. It also acts as the national and international focal point in the domain of environment. Furthermore, the Ministry is responsible for the institutionalization of the environmental impact assessment (EIA) system, maintenance of environment conservation areas, and operation of an Environment Protection Fund (EPF) as per the Environment Protection Act (EPA), 1996 and the Environment Protection Rules (EPR), 1997. MOPE is also the Focal Point for UNCCD and implements other environment-related Conventions as well. As NCB, the Ministry has the legal personality and it operates within the budgetary provisions approved by the Government. It also has authority to implement different policies and programmes. MOPE has interdisciplinary staff, and it carries out environmental activities by following annual work plans and timetables. It follows the established mechanism for supervision, control and evaluation.

On the other hand, HMG/N has constituted the Environment Protection Council (EPC) under the chairmanship of the Right Hon'ble Prime Minister to provide policy guidance and advise the Government on environmental matters. The Council comprises a mix of policy- and decision-makers, professionals, academicians, entrepreneurs, representatives of political parties and local bodies, and government nominated experts. MOPE functions as the Secretariat of the Council.

MOPE has a satellite-based MERCURE system and is planning to host a Web site for sharing information on land degradation and desertification. This has provided access to the Internet and Web sites. Under the MERCURE system, internal networking has been maintained and inter-agency networking has been planned. Other organizations dealing with forests, soil conservation, and agriculture, including the Nepal Agriculture Research Council (NARC) and the

International Centre for Integrated Mountain Development (ICIMOD), also have databases which will be very useful for the NAP process.

- **Institutional Framework for Coherent and Functional Desertification Control**

MOPE is in the process of establishing a Steering Committee (SC) for the fulfilment of obligations of Nepal as a Party to environment-related Conventions. This SC will strengthen linkages between the UNFCCC, CBD and UNCCD and implement activities through a coordinated approach. Furthermore, HMG/N has continued its efforts to strengthen NGOs and CBOs, particularly the legally recognized Community Forestry User Groups (CFUGs), and Water Users Associations (WUAs), including Community Soil Conservation User Groups (CSCUGs), and Buffer Zone Management Users Groups (BZMUGs) to implement natural resource management activities all over the country. HMG/N has also planned to provide soil and water conservation services all over the country by the year 2002 and to continue the process of handing over the State-managed forest to community forestry user groups for its conservation and sustainable use. Institutional strengthening of local NGOs and CBOs is a key to enhance their absorbing capacity over the local funds operated to implement natural resources management programmes.

- **NAP as Part of the National Economic and Social Development Plan**

Although rehabilitation of degraded land has been an integral part of the national development plan, desert-like areas are expanding due to accelerated land degradation, soil erosion, landslide, alkalinity and salinity in the agricultural land. This issue has been raised at the national level which has contributed in identifying priority programmes for the National Action Programme (NAP) process. The issues are periodically reviewed, and the reviews indicate that existing plans and policies emphasize the need for empowering local people in natural resource management. The problems of land degradation and its social and economic consequences have been reflected in development plans and programmes, and the NAP process will further mainstream the integration of land and water management aspects with the national social and economic planning process.

Issues of land degradation have also been accommodated in the regional programmes such as the South Asian Association for Regional Cooperation (SAARC) Plan of Action on the environment and food reserve, South Asia Cooperative Environment Program's (SACEP) land-based pollution study, and ICIMOD's mountain resources conservation programmes. The NAP process will be further linked with relevant subregional and regional action programmes in the spirit of the Convention.

- **Coherent and Functional Legal and Regulatory Framework**

Legislation has been implemented for the conservation and sustainable use of natural resources, particularly the forest, land and water. The Constitution of the Kingdom of Nepal, 1990, emphasizes environment management and economic progress of the people by raising agricultural productivity, through, *inter alia*, land reform programmes. The EPA, 1996 and EPR, 1997 and other legal instruments such as Muluki Ain, Aquatic Life Protection Act, National Parks and Wildlife Conservation Act, King Mahendra Trust for Nature Conservation Act,

Water Resources Act, Forest Act, and Local Self Governance Act also emphasize resource management, land-use regulation and people's empowerment. The legislation also provides for certain a percentage of income accrued from resource conservation for community development.

A review of existing legal regime also indicates that legislation in the field of forests, wildlife, water resources, environmental and local governance is forward looking as it opens avenues for public participation and people's empowerment in cost and benefit sharing. For example, the Forest Act, 1992 (amendment 1998) contains provisions to invest 25 per cent of the total earnings from community forests in forest management. The National Parks and Wildlife Conservation Act, 1973 (amendment 1993) empowers the Government to allocate 30 to 50 per cent of the total revenue collected in the protected areas for community development. Similarly, the Local Self Governance Act, 1999 empowers the local bodies to manage and use natural resources, collect revenue and utilize in resource management. However, the existing legislation will be further reviewed extensively as a part of the NAP process to ensure a coherent and functional legal and regulatory framework for UNCCD implementation.

Participatory Process for Preparation and Implementation of the Action Programme

- **Effective Participation of Actors involved in Defining NAP Priorities**

In the spirit of the Convention, the key actors and/or stakeholders have been identified. They comprise government organizations, non-governmental organizations (NGOs) and community based organizations (CBOs), the private sector, academia, media, youth and women. Some organizations such as SchEMS (School of Environmental Management and Sustainable Development), IUCN (The World Conservation Union) and NEFEJ (Nepal Forum of Environmental Journalists) have affiliated with MOPE for the implementation of environmental programmes. A number of public awareness programmes have been launched by governmental and non-governmental organizations through radio and television, and publication and distribution of items such as the State of the Environment Report, posters, pamphlets, news clips, to cater to the information needs of the local people have taken place. Environment courses have also been included in the formal education at primary, secondary and tertiary levels.

Public awareness has been enhanced by organizing meetings with the press, launching programmes for parliamentarians and trainer's training in environment management, and by celebrating World Days on environment, desertification and biodiversity, including forest and soil conservation days at the local level. With regard to desertification, MOPE organized a national seminar in 1997 which recommended, *inter alia*, various actions for the NAP process including the identification and assessment of hot spots, promotion of community forests and livestock stall-feeding, rehabilitation of degraded land, strengthening of institutional capacity, and mobilization of NGOs, CBOs, and mass media.

Policies and strategies have also been formulated to involve women and youth in the mainstream of national development through the user group mobilization approach. Similar policies exist to avoid or minimize gender imbalance, and enhance women empowerment through increased access to training, income generating (IG) activities, credit and resources. Women, NGOs and CBOs are equally involved in the consultation process during programme identification, design and implementation at various levels. The public

awareness programme has increased uptake at both the local and national levels, and this is reflected in policies and legislation, particularly in empowering the community groups in resource management.

NAP Consultative Process and Partnership Arrangement

Nepal has received some funding from developed countries such as Australia, Denmark, Finland, Germany, Japan, USA, and Switzerland. Various international agencies such as UNDP, UNEP, EU and IFAD are also providing support for the implementation of forestry, agriculture, and soil and watershed management activities, and rehabilitation of degraded lands. Nepal has yet to receive assistance for the preparation and implementation of the NAP. MOPE has formed an Environment Coordination Group (ECG) to discuss the environment-related matters with the donor community. It is hoped that informal consultation and exchange of information will enhance cooperation and partnership to implement the spirit of the Convention.

Measures Taken or Planned for NAP

- **Adequate Diagnosis of Past Experience**

Land degradation problems have been continuously identified while formulating sectoral plans and programmes. Experiences gained in soil and water conservation, soil fertility improvement and forest management emphasize further launching of land improvement programmes with people's participation and empowerment.

MOPE has also conducted a study to develop a broad-based programme with regard to the implementation of the UNCCD. The study identified priorities for a national plan of action and recommended to formulate a national policy-cum-management system, and establish a National Committee. The study also recommended to launch programmes such as awareness raising, training and capacity-building, communication and participatory processes, and emergency preparedness to implement the provisions of the Convention. The study has further recommended to upgrade knowledge and information base, launch soil and water conservation and afforestation activities intensively, develop and promote agro-pastoral system, develop comprehensive anti-desertification programme integrated with national environment and development plans, develop drought preparedness and drought relief and self-help schemes. A study is ongoing to draft the national policy and programme of action to combat desertification and drought, and it will be completed by July 2000. Other studies have also been carried out to analyse problems, causes and consequences of land degradation. The study findings will be a basis for NAP formulation.

- **Established Technical Programmes and Functional Projects to Combat Desertification**

Ongoing projects and programmes in relation to UNCCD priorities have been reviewed to derive a set of activities to facilitate the NAP process. They indicate possibilities to tie up with soil and water conservation activities. Land degradation issues have also been integrated into development projects including road and hydro-electricity development projects through the EIA system. People's empowerment has been enhanced through skills enhancement training and capacity-building activities at different levels.

- **Action Programme Implemented in Compliance with Priority Fields set out in the Convention**

Soil and water conservation activities are implemented in different parts of the country. Priority areas have been identified through consultative processes and studies. Ongoing actions on the establishment of a functional network of district level organizations for the implementation of forestry and agriculture related activities will further mainstream the NAP process at the field level. However, there is a shortage of financial resources to mobilize the local level institutions and improve their efficiency.

Although land degradation and forest depletion issues are in the forefront of public awareness programmes, there is still a need for wider coverage at the local level and to enhance their capacity in monitoring and evaluation programmes. At present, soil and watershed demonstration and research plots have been used to monitor soil erosion and the process of land degradation at different ecological zones.

As the resource conservation programme takes time to have economic benefits, income generating activities have been introduced as incentives for people's involvement. Also, a benefit sharing mechanism has been institutionalized to enhance the participation of community user groups in forest and park management, and irrigation water management.

- **Linkage Achieved with Subregional and Regional Action Programmes**

Nepal has been a part of the SAARC Regional Action Plan on Environment and Watershed Management in Asia and Asian WATMANET. The latter project is designed for human resource development in participatory watershed management, particularly for the sustainable use and management of forests, soil, water and other natural resources. Some research and scientific organizations are involved in developing programmes for regional studies, particularly on medicinal herb, biodiversity and people and resources dynamics.

- **Effectiveness of Measures in Local Capacity-Building**

The introduction of community and leasehold forestry programmes, buffer zone management and water conservation through users mobilization has been instrumental in local capacity-building in managing forests, soil and water. This has achieved a greater degree of responsibility among users. This has also enhanced the mobilization of women and youth to group work in resource management. In the forestry sector, about 0.650 million ha of forest have been managed by over 9,000 legally recognized user groups. This has benefited about 1 million people. Through this process, a feeling of ownership has been developed, and it will have a long-term impact on resource conservation.

Public participation has been promoted also through environmental legislation as the proponent has to issue a public notice for 15 days before the preparation of the Scoping Report, and conduct a public hearing before the finalization of the EIA report. MOPE has also to issue a public notice 30 days before the approval of the EIA report of any prescribed proposal. Furthermore, these activities are monitored and evaluated by the concerned agencies. The present practice of empowering the community groups has emphasized self-monitoring and evaluation. In EPF-funded activities, local governments and

educational institutions have been involved in supervision and monitoring activities.

- **Partnership Agreements Applied**

In Nepal, partnership agreements between the Government and CBOs have been ensured in forests and soil conservation activities and irrigation water management. Efforts are also made to establish a partnership in mobilizing EPF and other funding sources to implement selected activities by NGOs and CBOs. This partnership will be further strengthened during the NAP process. This partnership will also streamline the implementation of the relevant conventions such as UNCCD, UNFCCC and CBD through coordinated efforts.

So far, Nepal has mobilized about US$13,000 to collect background information for the implementation of the Convention.

Financial Allocations

- **Adopted Financial Mechanism**

Nepal is continuously spending a reasonable amount of money for the implementation of soil and forest management activities, and soil fertility improvement programmes through both national and international funding. NGOs and CBOs have access to EPF and other sources of funding. Local actors are informed about the availability of funding. However, these sources have limited funds and are unable to finance the services as required. In addition, community user groups have also access to government funds up to about 50 per cent of the estimated budget for the implementation of on-farm conservation activities, 30 to 50 per cent of the total revenue generated in the protected areas and at least 5 per cent in irrigation development. However, Nepal has yet to access local/private sector funds for the NAP process. HMG/N is reviewing its administrative procedures and organizational set-up to develop a new set of rules for the administration of EPF.

- **NAP Financing**

Nepal is collecting necessary information for NAP formulation and a strategy has yet to be developed for accessing the national and international funding sources, including Global Mechanism (GM). So far, the UNCCD secretariat has provided a total of US$13,000 to organize a national seminar in 1997 and to prepare this report. An NGO, SAP Nepal, has also received seed money from UNEP to prepare a case study for the UNEP Asia specific study on land tenure, environmental degradation and desertification in the dry lands of Asia.

- **Technical Cooperation Developed**

Nepal has yet to request technical cooperation. In the beginning, Nepal requires technical and financial assistance for public awareness, capacity-building and information exchange system, preparation of inventories of traditional knowledge, know-how, practices and technologies, identification of hot spots, partnership building and private sector involvement as part of the NAP process. Technical assistance is also required to strengthen the process of community empowerment in resource management. In order to implement these

activities in the spirit of the Convention, an estimated amount of US$915,000 is expected from the donor community.

Benchmarks and Indicators

- **Operational Mechanisms for Monitoring and Evaluation**

In Nepal, environmental monitoring and evaluation has been an integral part of programme monitoring as per the EPA, 1996 and EPR, 1997. Environmental auditing is also in process. The line agencies have established a monitoring and evaluation unit to monitor the project performance and its impact on the environment. In general, project specific indicators are developed, monitored and evaluated through built-in systems. In addition, sectoral agencies have started monitoring soil loss in representative ecological zones. Five demonstration centres and several research sites have been established so far for this purpose. Monitoring and evaluation information is used to strengthen the data bank on the status and trend of natural resources.

Information relevant to desertification control and resource management and utilization is published in State of the Environment (SOE), and national seminar proceedings. A number of publications of governmental and non-governmental organizations also contain information on the status and trend of land degradation in Nepal, and they are disseminated through print and electronic media.

As per the Constitution of the Kingdom of Nepal, 1990, every citizen has the constitutional right to information and has an access to available information. In order to expedite information sharing, informatory reports are regularly published to meet the demand of the users.

In a nutshell, Nepal is collecting necessary information for the NAP process. Nepal expects technical and financial assistance from the developed country Parties and multilateral donor agencies to prepare the NAP through extensive consultations. It will be implemented with people's participation. Existing environmental policies and programmes are geared to alleviate poverty which is one of the major thrusts of the Convention.

NIUE

Executive Summary

(i) National plans and strategies available in other social and economic areas. The National Strategic Plan is currently being implemented as from 1998. This plan highlights the importance of sustainable development including areas relevant to the combating of land degradation. In addition, there are other plans, which include the Land and Marine Resource Use Plan, and the Environment Management Plan, both of which have been formulated and have yet to be implemented.

(ii) National plans and strategies in the field of combating desertification developed prior to the UNCCD.

Prior to the formulation of UNCCD, National Strategic Plans for Niue have always been directed at sustainable development. However, no specific strategies have been formulated in the field of combating desertification.

(iii) Established and Functional National Coordination Bodies (NCB) and the role of National Focal Points (NFP).

The National Focal Points are External Affairs and the Department of Agriculture, Forestry and Fisheries (DAFF), both of which were officially nominated by the Government of Niue. They have very limited legal capacity and resources (i.e. human, financial and material). The National Co-ordinating Body (nominated by the National Focal Points) reflected a cross sectorial and multidisciplinary representation which include both Non-governmental Organizations and Government Organizations.

(iv) National Action Plans (NAP) as part of the National Economic and Social Development and Environment Protection Plans.

The outcome of this report highlights the need for strengthening of areas to combat land degradation, which can be incorporated into Niue's National Economic and Social Development and Environment Protection Plans.

(v) Coherent and functional legal and regulatory framework.

Niue's environmental laws are spread through a range of sector-specific legislation.

A draft Environment Management Bill (Govt. of Niue 1992) has been prepared and is intended to create a consolidated body of environment laws. This bill deals with the following issues:

(a) Establishment of a Conservation Council, a conservation service and conservation officers;
(b) Preparation of management plans relating to area management (such as protected areas) and a range of environmental issues (such as soil erosion, pollution, wildlife);
(c) Coastal zone management;
(d) Pollution of sea and waters; and
(e) Litter control.

(vi) Effective participation of actors in defining national priorities.

Although Niue has a small population with limited resources, information is readily disseminated through media such as radio, television and Village Council meetings. The two schools (Primary and Secondary) actively participate in teaching environmental issues. Awareness programme methods and activities utilized by the Biodiversity and climate change National Action programmes implemented to highlight combating land degradation issues.

(vii) Effective support from international partners for cooperation.

Various organizations such as AusAid, New Zealand Overseas Development Assistance (NZODA), United Nations Development Programme (UNDP) etc. have supported projects that although not specific for UNCCD, deal with issues relating to combating land degradation. The developmental projects have yet to identify relevant international partners for specific activities related to combating land degradation. With Niue recently a member of FAO, most of these specific activities will be investigated.

(viii) Adequate diagnosis of past experiences.
As stated earlier, there have been no specific activities undertaken in the field of combating land degradation. However, various feasibility studies in the past have been towards sustainable development. For example, the development of the Vanilla Industry, NZODA Forestry Project, Development of the Nonu Industry (draft), to name a few.

(ix) Action Programmes implemented in compliance with priority fields set out in the Convention.
Due to ongoing sustainable developmental programmes, a majority of measures identified in Article 4 of the Regional Implementation Annex for Asia of UNCCD have already been incorporated, thus avoiding duplication.

(x) Linkages achieved with sub-regional and regional action programmes (SRAP, RAP).
Various regional and sub-regional action programmes are currently ongoing which deal with sustainable development and raising the level of environmental awareness. However, these are not specifically targeted at combating land degradation. Such programmes are Biodiversity, Climate Change, SPREP-Niue Environmental Management Strategy, SPREP - State of the Environment Report.

(xi) Effectiveness of measures in local capacity building.
The Climate Change and the Biodiversity projects, both have Capacity Building components incorporated which are relevant to UNCCD issues. In addition, Niue has the capacity dealing with environmental law issues and land and marine resource management. Therefore, ensuring sustainable development.

(xii) Adopted financial mechanisms.
Land degradation is of concern to Niue and the majority of Aid projects incorporate this issue. Due to financial constraints, the Government is only able to offer assistance through its human resource pool. The majority of developmental projects that are in line with combating land degradation have been funded externally, the majority of which include technical support. Hence, minimal financial support was required from the Government of Niue.

OMAN

The Sultanate of Oman is located on the part of the Mass known as the Arabian Peninsula, which is classified according to the World Atlas of Desertification (UNEP, 1992) as mostly hyper-arid and arid in parts. 95 per cent of Oman is either climatic desert or more than moderately affected by desertification.

His Majesty Sultana Qaboos bin Said, Sultan of Oman, has placed special emphasis on the conservation and protection of the environment of Oman, since it constitutes an important pillar of development thereby safeguarding living standards of the people of Oman. The achievement of socio-economic development depends on the existence of an enabling environment. Thus the objective of development must lead to attaining the balance between people's welfare and conservation of natural resources. Oman has realized the importance of the conservation of the environment, natural resources and their optimum utilization for the benefit of the present and future generations in a sustainable manner through the following:

- Formulation of environmental legislation;

- Provision of administrative and technical bodies to ensure enforcement of the laws;

- To train, develop and qualify technical staff required to deal with these aspects;

- Special consideration was given in the Sultanate of Oman to the problem of desertification in general, and the degradation of some of its agricultural lands in particular.

PAKISTAN

Pakistan is predominantly an arid and semi-arid country and is threatened with desertification and degradation of land due to rapid increase in population and growing pressure on the natural resource base to meet the needs of the people. Pakistan signed the United Nations Convention to Combat Desertification in October 1994, which was ratified in February 1997.

As agreed by the countries which are Parties to the Convention, a National Action Programme (NAP) to Combat Desertification with the financial support of UNEP and ESCAP has been prepared which is in the process of revision, with the consultation and participation of all stakeholders.

The first national report of the UNCCD implementation briefly highlights the activities undertaken and the action, completed for the implementation of UNCCD, not only during the last three years but prior to that as well, in so far as they relate to the steps taken to address issues and concerns of desertification/land degradation in general and the specific measures to be adopted under the Convention. These are described in the following paragraphs.

Strategies and Priorities established within the framework of sustainable development plans and/or priorities

Activities like soil and water conservation, dryland afforestation, and rehabilitation of degraded rangelands and saline areas have been part of the programmes of line agencies since independence (1947) and even during British rule. The turning point in the awareness and need for serious thinking and concerted efforts to address problems relating to desertification/land degradation came in the late 1960s/early 1970s. The earlier projects, however, lacked community participation perspectives and imperatives. Earlier strategies and policy initiatives to address serious issues of land degradation and resource conservation resulted in the compilation and preparation of the National Commission Report on Agriculture (1988), the Forestry Sector Master Plan (1992) the National Conservation Strategy (1992), Sarhad (NWFP) Conservation Strategy (1996) and the National Master Agricultural Research Plan (1996). These documents have already resulted in widespread acceptance of the principles of sustainable development; broader realization of the importance of natural resources and proper land use; new ways of working between sectors, institutions and disciplines; methodologies for consulting, communities, NGOs; involvement of women and group of Pakistan policy analysis experts. Pakistan has also signed and ratified the United Nations Convention on Biological

Diversity. A climate change impact assessment and adaptation strategies study was completed in 1998.

Institutional measures taken to implement the Convention

A National Coordination Committee on Desertification (NCCD) was constituted in the Ministry of Environment, Local Government and Rural development (MELGRD) in 1998. Membership of this committee has now been revised. This committee will promote education, public awareness and capacity-building, review and update the NAP, strengthen inter-agency coordination and implementation of the specific programmes for combating desertification. It is a committee which comprises different government, provincial, private sector and NGO representatives. Scientists and university teachers are also represented. NCCD is served by a technical staff of four professional persons. The National Focal Point (NFP) is the Director General, Ministry of Environment. This ministry is responsible for formulation, coordination and implementation of policies relating to environmental issues. Reconstitution of NCCD by raising its status with a federal minister as its chairperson has been proposed. NCCD will be served by a separate wing/cell for desertification control/arid lands development, which will be the new NFP. The relocation of NCCD in another ministry of the Federal Government is another possibility depending upon the approval of the NAP. There is no separate budget for NCCD and the core budget of MOELG&RD is being utilized for routine activities. NCCD will become fully functional once the NAP is approved. The National Committee will be assisted by three subcommittees, that is: (a) technical committee; (b) budget and finance committee; and (c) information extension and communication committee.

The National Conservancy Strategy has reviewed the mechanism for coordination and harmonization of action to implement policy and programmes. It sets forth the beginning of a plan to integrate environmental concerns into virtually every aspect of economic life. The achievement to strengthen the institutional mechanism are: an Environmental Protection Act was promulgated in 1997, participation of women has increased, training is being developed in environmental assessment, an independent sustainable policy institute has been established, the Federal and provincial Governments have established environment sections in their planning departments which will facilitate the integration of NAP with national and provincial development plans. A beginning has been made in organizational development starting with the agencies most concerned with environment and natural resource management. Government has recently announced its new policy of decentralization and devolution of powers by establishing district governments of elected representatives at a lower level to plan, approve and undertake projects of socio-economic and rural development at local level.

Various forums already exist in the country for coordination which will facilitate the NAP. These include the National Economic Coordination Committee. There are a number of other central, provincial and departmental working parties for this purpose.

The issue of capacity- and institutional-building has been addressed through the reports of various commissions and plans referred in foregoing paragraphs. Existing research and development institutes will facilitate the implementation of NAP and make its structure operational. Priority is being given in the national development plan (9th five-year plan) which is being

prepared, for allocating resources for projects to be formed under NAP for halting land degradation, resource conservation, social action programmes and poverty alleviation. New district governments to be formed under the decentralization policy of the Government will get grants and also generate funds by taxation at the local level. Such projects of desertification control and resource conservation/management will get priority in terms of financial allocation from the elected representatives.

The existing plans and strategies have been reviewed and analysed to ensure complementary action to avoid duplication. The objectives and scope of proposed programmes have been spelled out clearly and a system of diagnostic and feasibility appraisal exists at federal and provincial levels which will be further strengthened.

UNCCD principles are fully acknowledged and recognized in the National Plan and other sectoral plans/schemes. The Government is determined and committed to principles of people's participation partnership and coordination at all levels and to focus resources where they are needed.

Besides the "Constitution of Islamic Republic of Pakistan" and Pakistan Penal Code, there are ordinances, rules, acts and regulations for items such as land use, water quality, air quality, marine and fisheries, and forest conservation. A significant measure for natural resource conservation and environment is the promulgation of Pakistan Environmental Protection Act (1997) in order to ensure a greater involvement of responsibility of local population NGOs and public and private sector. An Environmental Protection Council has also been established to coordinate and supervise enforcement of the provisions of the ordinance.

Participatory process in support of preparation of action programmes

There has been a continuous process of defining priorities through consultation for sustainable use of natural resources which started in 1973 and continued through 1988 and 1992 by the National Commission on Agriculture, National Conservation Strategy and Forestry Sector Master Plan. The priorities have been reviewed and revised as a result of consensus developed through an earlier US-Pakistan Joint Seminar on Arid Land and Desertification in 1986. A national seminar and a workshop for reviewing the draft NAP were organized in 1994 and 1997. The new units/cells of Desertification Control Programmes at federal and provincial levels and subcommittees of NCCD will ensure exchange, circulation transfer and dissemination of the information to create awareness.

Consultative process in support of the preparation and implementation of NAP

NAP has been prepared with the financial support of UNEP and ESCAP. Once it is approved, help and involvement of international partners will be sought for implementation. Mechanism is already available for consultation with such organizations.

Measures taken or planned within the framework of NAP

Authors of the NAP programme relied on the diagnosis of past experience described in the national commission reports sectoral plans and conservation strategy and their own knowledge and experience.

In the backdrop of the constitutional authority and powers of the Federal and provincial Governments, NAP's implementation and programmes defined therein will, by and large, be carried out by the provincial line departments, local government departments and rural support programmes with the involvement of community organizations and NGOs. National and provincial desertification control units/cells and NCCD will facilitate the integration of new and ongoing activities by working in harmony with provincial line agencies and other organizations involved. Implementation of projects jointly with a multi-disciplinary approach by participation of all the agencies involved will be attempted.

There are proposals and programmes to strengthen capacity at local level through short term professional training and farmers training. However, these activities, to a limited extent, are being carried out even now under rural support programmes.

A NAP document has been compiled with the participation and involvement of national, provincial/regional organizations and scientists who were consulted through workshops and seminars. Linkage developed during the formulation phase will be formalized through the provincial and national desertification committees. Relevant scientific networks at national, provincial and regional level will be strengthened.

To empower the people at grass-roots level, new district governments and local councils to be established will facilitate transfer of authority and responsibility to manage and develop natural resources on sustainable basis at the local level, according to the needs and aspiration of the people. Environmental NGOs and rural support programmes will also be involved in organizing the communities.

A well-defined, elaborated and well-developed financial mechanism exists in the country for the access of all the actors. The same mechanism will be used for placing funds at the disposal of different actors for implementation. National and provincial desertification committees and the desertification control cells/units will facilitate transfer of funds and help in cutting out delays and sorting out problems, if any. In addition to the National Desertification Fund, the others sources to ensure financing for combating desertification will be non-development/core budget of departments/ministries, development budget through annual development programmes, donor assistance, funds raised by the community organization for self-help and funds generated by taxation by the local councils.

Benefits of investment in environmental projects of halting land degradation and conservation of natural resources are in most cases indirect and hard to quantify in terms of monetary value. Benefits of such activities under NAP are visualized in terms of direct and indirect benefits to the society and the nation as a whole.

Funds are being provided at present for implementing resource management and development projects by the European Union, GEF , FAO and UNDP and other donors. These projects are being implemented by Government Institutions, IUCN and WWF.

Technical cooperation is needed to improve and develop the capacity in remote sensing, early-warning, assessment and mapping of desertification, management of information systems, monitoring, evaluation and impact assessment. Review of benchmarks and indicators utilized to measure progress: There is no developed and formal national environmental and evaluation system. Federal and provincial planning departments monitor and evaluate environmental projects and programmes through a system of periodic reports and review meetings. Institutes at operational level also have a system of review and evaluation through reports and field visits. The capacity of producing impact indicators and harmonizing existing information is limited. This capacity will be developed through technical assistance under the NAP.

In conclusion, the Government of Pakistan is committed and determined to implement UNCCD steps and initiatives already taken or those under way in this direction including: several policies, institutional and legal reforms and strategic changes that will facilitate the implementation of NAP; establishment of a NCCD and NFP to coordinate and oversee the implementation of NAP; setting up of a task force on the initiative of UNSO for creating a national desertification fund, preparation of a draft NAP with the involvement and participation and consultation of all stakeholders in a long drawn process of three national workshops and seminars; decentralization and devolution of powers to enable public representatives at a grass-roots level to participate in decision-making that is relevant to combating land degradation; start of a social mobilization process by NGOs and the rural support programmes; enabling some environmental NGOs to create awareness and undertake small projects addressing desertification concerns.

Activities and efforts already under way by several government/private organizations, institutes, departments, NGOs and rural support programmes to combat desertification will be strengthened, integrated and supplemented through a nationally orchestrated, supported, coordinated and monitored system under the NAP. The country is thus on course for full-scale implementation of the UNCCD for the benefit of the people, in general, and the deprived and resource poor rural communities who are threatened and affected by desertification.

PALAU

1. THE STRATEGIES AND PRIORITIES ESTABLISHED WITHIN THE FRAMEWORK OF SUSTAINABLE DEVELOPMENT PLANS AND/OR POLICIES

While the Republic of Palau, with over 2,000 mm of rainfall annually, is not subject to desertification, we have felt the effects of global climate change, and of land degradation due to human activities. Two effects of climate change are of particular concern to Palau: drought due to the El Niño/ENSO phenomenon; and sea level rise. The Republic of Palau is additionally threatened with land degradation due to road building, agricultural expansion, and various other land-clearing and forest cutting activities. Economic development needs to be undertaken in a manner which will not reduce the ability of future generations of Palauans to benefit from Palau's rich natural resources.

The Republic of Palau is located near the global centre of marine biodiversity. Within this small archipelago there are over 1,300 species of fishes, and over 700 species of corals. All of these marine organisms, and the

ecosystems on which they depend, are threatened by small increases in ocean temperatures, which are lethal to many species of corals. In addition, marine ecosystems can be damaged or destroyed by terrestrial activities, which increase soil erosion and/or which add toxic chemicals and other pollutants to the marine ecosystems. Palau also has approximately 200 species of endemic plants; plants found nowhere else on earth. Development activities and climate change may threaten many of these species as well.

The Republic of Palau has just begun to come to grips with the environmental issues raised by the UNCCD. Environmental degradation is a serious threat to this small island nation. Following are a few examples of potential causes of land degradation.

HUMAN ACTIVITIES

While climate change, drought, and sea level rise present significant long-term threats to Palau, human activities pose perhaps the greatest immediate and short-term threat to Palau's natural resources. These human activities include fishing/overfishing, dredging, and numerous terrestrial activities, which can result in damage not only to terrestrial resources, but in pollution and destruction of marine resources as well.

COMPACT ROAD

Construction has just begun on an asphalt road, known as the "Compact Road", planned to encircle Palau's largest island, Babeldaob. While 52 miles of road may not sound like much to most countries in the United Nations, to Palau this is a major project which can impact most of the archipelago. The U.S. Army Corps of Engineers will oversee the construction of the road. Erosion mitigation measures will be taken according to standards developed by a group of local scientists. However, there is widespread concern that erosion mitigation standards may not be closely adhered to; that rare endemic plant and animal species may be destroyed during or following road construction, and that opening previously inaccessible locations to road traffic may result in their degradation.

DROUGHT

Drought is an intermittent issue in Palau, a country with over 2,000 millimetres of rain per year. We learned in 1997-1998, however, that we too could be affected by drought. As a result of the El Niño/Southern Oscillation phenomenon, Palau endured several months with little or no rain. Crops were affected, as was delivery of piped water when reservoirs and streams were depleted. Similar drought conditions were suffered intermittently during 1982-1984, and are likely to occur again, although the timing cannot be predicted.

SEA LEVEL RISE

Another environmental issue of major importance to Palau is the rise in sea level. In the past two years, salt water intrusion into taro paddies has taken place during unusually high tides. We are concerned that this is a trend, and that much of our low-lying land will be rendered unproductive. Since taro (*Colocasia esculenta* and *Cyrtosperma chamissonis*) production is largely the province of women, this phenomenon will profoundly and adversely affect women's

lives and livelihoods, as well as the nutrition and economy of the entire nation.

KED/SAVANNA

Approximately one fourth of Palau's land area, mainly on the island of Babeldaob, is in moderately to steeply sloping grassland, known locally as "ked," and often referred to as savanna lands. These grassland areas are generally sparsely vegetated and highly subject to soil erosion. The soils are low in nutrient content and are generally moderately to highly acidic.

The *ked* areas are also subject to frequent fires during dry periods. The fires further deplete organic matter, and result in greater soil erosion during rains following burning. This cycle of burning and erosion has already resulted in areas completely without vegetation. It is not known whether these areas are expanding, and monitoring is needed. The cycle of burning and erosion not only degrades the land on which it occurs; it also has deleterious effects on low-lying areas, mangrove forests, the lagoon, and eventually the coral reef. Efforts to prevent burning have met with very limited success. These efforts need to be expanded. All of these grassland areas would benefit from afforestation. However, attempts at afforestation have also met with limited success, mainly due to the destruction of tree seedlings by fire.

Most of the rest of Babeldaob is forested and thus protected from erosion, but deforestation would pose serious threats of land degradation.

INVASIVE SPECIES

As an isolated island nation, Palau is threatened with invasion by alien plant and animal species. These invasive plants and animals can disrupt the island ecosystems, crowding out and/or destroying native and endemic species. Palau has recently strengthened its quarantine laws and is upgrading its quarantine staff, but much work remains to be done to prevent further introductions. Work is also needed to control or eradicate invasive species, which have already been introduced.

The Republic of Palau has yet to develop a plan or strategy to directly address desertification and land degradation. However, a number of agencies are currently working in Palau to protect terrestrial and marine resources. In addition, the Palau National Master Development Plan addresses the need to develop Palau's natural resources sustainably.

The UNCCD will provide Palau with a framework for specifically addressing issues related to global climate change, desertification, and land degradation. Palau intends to develop a National Coordinating Body to coordinate and lead these efforts, beginning this year. There is no organized plan or organization at present to deal with these problems. There are, however, several organizations and government agencies which deal with environmental issues. What needs to be done at present is to create an organization/consortium of these organizations and agencies to coordinate efforts among them.

2. THE INSTITUTIONAL MEASURES TAKEN TO IMPLEMENT THE UNCCD

As noted above, no specific measures have been taken to date; Palau has just signed on to the UNCCD, and there has not yet been time to create a National Coordinating Body to lead this effort. The National Master Development Plan (NMDP) will provide a framework within which the NCB can work. Additionally, the President's National Task Force on Agricultural Development has just submitted its final report and recommendations (April 2000). The Government of Japan also has experts in Palau at the present time, contributing to updating the NMDP.

- **PARTICIPATORY PROCESS IN SUPPORT OF THE PREPARATION AND IMPLEMENTATION OF THE NAP**

The national Government is still considering how best to create the NCB, and the makeup of its membership. Among the stakeholders in this process are such government agencies as the Environmental Quality Protection Board, the Ministry of National Resources, the Bureau of Women's Affairs, and others. Non-governmental organizations include the Palau Conservation Society, Palau Community College, the Palau Community Action Agency, the Coral Reef Research Foundation, and several others. Several women's organizations have a stake in climate change, since the women's taro farms are most threatened by rising sea levels.

An inventory of stakeholders must be done; following which will be a series of organizational meetings. The NCB will then be capable of developing the National Action Plan.

- **CONSULTATIVE PROCESS IN SUPPORT OF THE PREPARATION AND IMPLEMENTATION OF THE NAP AND THE PARTNERSHIP AGREEMENT WITH THE DEVELOPED COUNTRY PARTNERS AND OTHER ENTITIES**

The consultative process will be an essential part of the development of a National Action Plan in Palau. We lack expertise in the areas of global climate and climate change, and have limited resources in related areas. Palau will need considerable support and assistance in order to develop an adequate action plan. As Mr. Isaac Soaladaob noted in his statement to the 3rd session of the Conference of the Parties of the UNCCD, Palau wishes to organize an awareness seminar this year, but will need assistance to do so.

- **MEASURES TAKEN OR PLANNED WITHIN THE FRAMEWORK OF THE NAP, INCLUDING MEASURES TO IMPROVE THE ECONOMIC ENVIRONMENT, TO CONSERVE NATURAL RESOURCES, TO IMPROVE INSTITUTIONAL ORGANIZATION, TO IMPROVE KNOWLEDGE OF DESERTIFICATION AND TO MONITOR AND ASSESS THE EFFECTS OF DROUGHT.**

Such measures have yet to be undertaken, and await development of the NAP. Palau is fully aware of the need to include all the above measures, and they will be fully taken into account by the NCB when it develops the NAP.

- **FINANCIAL ALLOCATIONS FROM NATIONAL BUDGETS IN SUPPORT OF IMPLEMENTATION AS WELL AS FINANCIAL ASSISTANCE AND TECHNICAL COOPERATION RECEIVED AND NEEDED, IDENTIFYING AND PRIORITIZING REQUIREMENTS**

Developing an adequate response to the problems created by global climate change will take resources, which the Republic of Palau does not have. Without doubt, financial support will be needed. A budget has yet to be developed, however.

- **A REVIEW OF THE BENCHMARKS AND INDICATORS UTILIZED TO MEASURE PROGRESS AND AN ASSESSMENT THEREOF**

These have not yet been developed.

PHILIPPINES

Introduction

The Philippines ratified the United Nations Convention to Combat Desertification on 10 February 2000, with final accession to the Convention coming into full force in May 2000. As an initial effort, this report provides an insight into the country's increasing vulnerability to drought and land degradation on account of poor watershed and land management, increasing population, and the increasing recurrence of extended dry spells, and the alternating incidences of El Niño and La Niña. These conditions resulted in continuing loss in soil productivity, decline in water availability, and the creation of serious stress on marginal lands that have become the primary source of subsistence for marginally poor farmers.

Drought Vulnerable Areas

While the Philippines is not within the geographic limits and does not have the conditions defined for the Convention on Desertification and Desertified Areas, there are specific areas in the northern tip of Luzon and the southern tip of Mindanao that are within dry sub-humid agricultural areas and are suffering from seasonal aridity and have clear conditions similar to desertification caused by recurrent drought.

These vulnerable areas with seasonal aridity are the major areas of food security in the Philippines. These areas are the major corn and feed grain-producing areas located within the moisture-deficit, rain shadow areas of Region 11 (General Santos City, South Cotabato, Sarangani, and portions of Davao del Sur in the southern tip of Mindanao Island) and of Region 2 in the northern tip of Luzon (Sand dunes of Ilocos Sur, significant portions of Tuguegaro in the Cagayan Valley).

The areas with seasonal aridity and within the dry sub-humid areas are specific portions of the country with dominantly sandy soils that are vulnerable to drought and have land degradation that simulates desertification processes. The seasonal aridity is accentuated by the increasing incidence of El Niño, which now follows a two- to three-year cycle from a five-year interval. The mean daily temperature varies from 30 to 35 degrees C and the relative humidity ranges from 70 to 80 per cent, which is much lower than in most parts of the country. Under these conditions, the soil organic matter is almost depleted

(1 per cent or less) and is characterized by receding groundwater and drying rivers, particularly when extended dry spells and El Niño occurs.

The range of the annual growing period, based from historical analysis of rainfall and evapo-transpiration analysis, indicates that under normal conditions, is limited to four months, with the remaining months suffering from severe moisture stress, and is highly variable and unpredictable. During El Niño periods these areas will suffer most since dry spells would extend up to 10 months, preventing small and marginal farmers to plant their corn crops. During this extended dry spell, the soils of areas, which are generally sandy, and soil moisture is unable to support normal crop growth without supplemental irrigation; the degradation of organic matter is accelerated and wind erosion predominates during the height of the dry season.

Major Events Enhancing Vulnerability to Drought and Desertification

The seasonally arid and dry sub-humid areas are characterized by naturally recurring events and conditions that favour the initiation of drought and desertification. These events are:

1. Increasing Incidence of Drought: El Niño and La Niña Phenomenon

Major drought events in the Philippines have been related to the various El Niño events. Historical records indicated that there are 13 serious El Niño events that happen within the past four decades (1950-1999). The last quarter of 1982 represents the start of the most severe El Niño-related drought in the country. The most recent El Niño, in 1997-1998, was the most extensive in terms of coverage and has seriously affected agricultural lands and crop production and has caused widespread forest fires in the country's already derelict watershed and grassland areas. Areas planted for rice decreased from 3,842,000 hectares to 3,170,000 hectares, resulting in the contraction of palay output by 24.1 per cent and yield per hectare by 7.9 per cent. In the same manner, the areas planted for corn decreased by 14.3 per cent, resulting in the contraction of corn output by 11.7 per cent, although the yield per hectare improved slightly from 1.59 tons in 1997 per hectare to 1.62 tons per hectare during the El Niño year, 1998.

The 1997-1998 El Niño caused many rivers to dry up and induced extensive destruction of watershed areas through forest fires. This event likewise resulted in the drying up of many dams, notably the Angat dam which is the source of irrigation and domestic water supply for Metro-Manila. During the height of the drought, the Government decided to cut-off irrigation water for about 25,000 hectares located in two provinces in order to ensure the water supply of Metro-Manila.

The incidence of long dry spells has affected some 10 per cent or 1.05 million hectares of the country's agricultural lands. This resulted in the loss of 2.5 million mt of agricultural products. Water levels in different hydroelectric dams were observed to have gone down from October 1991 to March 1992, significantly affecting their power generation capacity. The eight-month drought in Mindanao also caused health and sanitation problems due to the drying up of rivers and wells. These forced tribal communities to drink unsafe water resulting in the widespread outbreak of gastro-intestinal diseases. Forest fires induced by long dry months were also severe. For instance, the

1992 drought caused the burning down of a total area of 43,789 hectares of watershed areas.

2. Active Land Degradation

Soil erosion is the most dominant and most dynamic and active force of land degradation in the Philippines. The general extent of land damage caused by soil erosion in the three major islands in the country shows an average of 45.6 per cent of total lands are suffering from moderate (28.3 per cent) and severe (17.3 per cent) erosion.

Other forms of land degradation are loss of soil nutrients, river erosion, water logging, urbanization and other forms of land degradation.

3. Volcanic Eruptions

The Philippines has more than 200 active volcanoes, 21 of which are considered as active. There are four volcanic belts, namely the Westerly Convex Volcanic Belt in Northern Luzon, the Easterly Convex Volcanic Belt from Southern Luzon, the Westerly Volcanic Belt in Negros and Panay Islands, the Southeasterly Volcanic Belt in the Sulu archipelago and Zamboanga Peninsula in Mindanao.

The major volcanic eruption was that of Mt. Pinatubo on 12 June 1991. This eruption resulted in the widespread coverage of volcanic ash and lahar (about 80,000 hectares of agricultural and urbanized areas) and have created a desertified, drought prone condition.

4. Declining Arable Land and Increasing Use of Marginal Degraded Lands due to Land Conversion

The Philippines is suffering from losses in prime agricultural lands from urbanization, construction of golf courses, housing projects, and other socio-economic development infrastructures. The net impact of these losses of prime lands is the movement of deprived, marginalized farmers into the uplands which have marginal productive potential and are seriously lacking in development facilities. Records indicated that these lands are actively being degraded and can not provide even the subsistence needs of farm families.

5. Low Investment in Irrigation Development and Inefficient Water Technologies

The last major irrigation system development was completed in 1980 and after that period no major investment for new irrigation systems were provided. The current efforts are dedicated to the rehabilitation of existing systems and the creation of more investments in small irrigation systems.

Establishment of a National Conservation Body

The prescribed National Conservation Body is not established. However, there are existing organizations, both in private and government sectors, that have concerns with land degradation and drought. There are a considerable number of agencies and private organizations directly and indirectly concerned with drought and land degradation. These bodies shall be tapped to become party to the National Conservation Body.

Institutional and Policy Framework

The Philippine Government has espoused the framework of Philippine Agenda 21, which subscribed to the full achievement of sustainable development. The Philippine Agenda for Sustainable Development is a multi-sectoral organization that integrates people with development and environmental protection. The participatory approach is well emphasized to ensure that all stakeholders of development and environmental management have high awareness of the plans and programmes of the Government.

In responding to the fundamental laws contained in the Constitution, the Government promulgated supportive legislation. Such legislation describes and prescribes the specific uses for land and water resources. Some of the selected Republic Acts and Presidential Decrees currently enforced by the respective sectors relative to land and water utilization and management:

1. R.A. No. 6657: comprehensive Agrarian Reform Law provides that after the lapse of five years from its award, when the land ceases to be economically feasible and sound for agricultural purposes, or the locality has become urbanized and the land will have a greater economic value for residential, commercial or industrial purposes, the Department of Agrarian Reform may authorize the reclassification or conversion and deposition of the land.

2. R.A. No. 7160: Local Government Code of 1991 states that a city or municipality may classify agricultural lands provided that there exists an approved zoning ordinance implementing its comprehensive land-use plan and provided that it is within the limits prescribed thereof. It is further stated that agricultural lands may be classified if they cease to be economically feasible and sound agricultural purposes or when the land shall have substantially greater economic values for residential, commercial and industrial purposes. Agricultural lands may be reclassified in excess of the limits for food production, human settlements, ecological considerations, and other relevant factors in the city or municipality. Cities and municipalities are also mandated to prepare and update their respective comprehensive land-use plans enacted through zoning ordinances that shall be the basis for use of their resources and reclassification of agricultural lands.

3. R.A. 8435: Agricultural Fisheries and Modernization Act of 1997 provides the delineation of Strategic Agriculture and Fisheries Development Zones (SAFDZ) within the Network of Protected Areas for Agriculture and Agro-industrial Development (NPAAAD) to ensure that lands are efficiently and sustainably utilized for food and non-food production and agro-industrialization.

4. R.A No. 8550: The Philippine Fishery Code of 1998 provides for the achievement of food security as the overriding consideration in the utilization, management, development, conservation and protection of fishery resources and ensures the rational and sustainable management and conservation of the fishery and aquatic resources in Philippine waters including the Exclusive Economic Zone (EEZ) and in adjacent high waters.

5. R.A. No. 7586: National Integrated Protected Areas System Act of 1992 recognizes the critical importance of protecting and maintaining the natural biological and physical diversities of the environment, notably in areas with biologically unique features to sustain human life and development, as well as

plant and animal life. In this regard, the State adopts the policy to establish a comprehensive system of integrated protected areas within the classification of national parks as provided for by the Constitution for the purpose of securing perpetual existence of all native plants and animals for the present and future generations.

6. P.D. 705: Revised Forestry Code of the Philippines provides that the multiple uses of forest lands shall be oriented to the development and progress requirements of the country, the advancement of science and technology and public welfare. The protection, development and rehabilitation of forest lands shall be emphasized so as to ensure their continuity in productive condition.

7. P.D. 1067: 1976 Water Codes of the Philippines adopts a basic law governing the ownership, appropriation, utilization, exploitation, development, conservation and protection of water resources and rights to land thereto. It provides that any watershed or any area of land adjacent to any surface water or overlaying any ground water may be declared as protected area. Rules and regulations may be promulgated to prohibit or control such activities by the owners or occupants thereof within the protected area which may damage or cause the deterioration of the surface water or groundwater or interfere with the investigation, use, control, protection, management or administration of such waters.

8. P.D. 1586: Environmental Impact Statements provides for the establishment and institutionalization of a system whereby the exigencies of socio-economic undertakings can be reconciled with the requirements of environmental quality. It is also caused for the declaration of certain projects, undertakings or areas in the country as environmentally critical. For this purpose, the proper land and water use pattern for the areas of said critical projects shall be prepared.

Strategies and Priorities

The first major effort to create appropriate strategies for the Philippines is to undertake the Mindanao Workshop on Drought Mitigation and Land Degradation Control in the last quarter of 2000. The UNCCD, UNDP and the National Government of the Philippines will support the proposed workshop in Mindanao.

The strategies adopted by the Government cover wide but inter-related actions on soil and water conservation and management. They include:

1. More focused attention on small-scale irrigation systems and major investment in rehabilitating existing national irrigation systems to improve their irrigation efficiency.

2. Shallow Tube Well Development. Individual shallow wells were installed in individual farmers' fields as a way to augment irrigation in lowland areas not covered by the national and communal irrigation system. The total number of shallow tube wells established is 23,240, serving at least 69,720 hectares.

3. Intensive campaign for rainwater harvesting and management. The country has about 369 rainwater retention structures (small water impounding projects), which now provides water for irrigation of about 21,180 hectares of rice and other upland crops. Freshwater fish and watershed development are important outputs of the establishment of small water impounding projects. There are some 20,009 small farm reservoirs (serving 20,009 hectares) established and completed to serve individual farmers.

4. Switch to organic-based farming, using the Balanced Fertilization Strategy, which provide optimum mix of organic and inorganic fertilizers. The fertilization strategy resulted in a sustained yield increase from 2.5 tons per hectare to 6-7 tons per hectare and improvement in soil fertility properties.

5. Watershed Protection and Resource Management. There is now a "no-logging" policy, especially in critical watershed areas.

6. Recognition of the Watershed Domain of the Indigenous Communities.

7. Encourage wider and closer participation of NGO, PO, and other private sector groups in land-use and management planning.

8. Legally defining the locations and distribution of prime agricultural lands or the Strategic Agriculture and Fishery Development Zones with the ultimate aim of protecting prime lands from irrational conversion and ensuring that the best lands of agriculture are identified and set aside for the country's agriculture modernization programme.

National Action Programmes

The National Action Programmes of the Philippines has not been formulated to date. However, the Action Programme will subscribe to the inclusion of various programmes that will be addressed to mitigating drought and land degradation and ensuring that the desertification process is not allowed to occur in any parts of the country. The National Action Programme will include the following concerns:

- Improvement of Economic Environment
- Conservation of Natural Resources
- Improvement of Institutional Organization
- Information Campaign on character and impacts of Desertification, Drought and Land Degradation
- Monitoring and Evaluation on the Effects of Drought and land degradation

QATAR

The State of Qatar has shown an early interest and serious concern in the effects of desertification and has consciously observed and/or attended to different efforts by the International community (countries and organizations) towards the development of UNCCD and its subsequent activities and very positive progresses. Joint action is indeed felt by the policy and decision makers in the State of Qatar as highly needed in order to combat desertification and/or mitigate the effects of drought.

The country has experienced a fast and a vast socio-economical development

in the last few decades as a result of its high oil revenues. This was early also accompanied by anxious and great interest in exploring, supporting and investing other natural resources. Land and water resources are no exception. Although agricultural production output is very low (only 1.1 per cent of the total GDP), significant increases in aspects like cultivated area of several groups of crops, number of farms, productivity indexes, livestock numbers and in areas irrigated were achieved.

As a consequence to both the said socio-economic changes and the imbalances of accompanying intensive and extensive management activities in the field of natural resources, desertification has manifested itself in several aspects. Declining quantity and quality of water and land resources and vegetative cover are now very well realized and established.

The efforts of the previous joint projects with United Nations organizations and national governmental bodies presently existing such as: (a) Department of Agricultural and Water Research; (b) Department of Agricultural Development; (c) Department of Environment - all under the umbrella of the Ministry of Municipal Affairs and Agriculture, are notable.

They brought-in awareness, facilitated many relevant strategies, policy activities and achievements which directly or indirectly stream-in the local combating of desertification efforts taken and/or to be taken at national level. Some levels of participatory and consultative actions are ongoing, but they wait for more support and strengthening.

This report may be considered, among other resources, as baseline information that will assist measuring changes that might take place in the future. Changes are expected due to the implementation of future plans relating to combating desertification in the State of Qatar. Such future plans are expected to be drawn up within the broad guidelines of the NAP outlined in the national report.

REPUBLIC OF KOREA

Through the long history of Korea, wise management of forests and water flows has been the most important among various priorities of dynasties and governments. But during the first half of the 20th century, including the Korean War, severe deforestation had occurred across the Korean Peninsula due to widespread illegal cuttings and overcutting practices. Since the early 1960s, in parallel with the Economic Development Plans, rehabilitation activities of forest lands have been strongly propelled in order to green the country again. In 1973 the first 10-year National Forest Plan was devised to complete the rehabilitation of denuded forest lands and to enhance the protection of the existent forests. The subsequent National Forest Plans have been implemented for improving forest resources and consequently providing augmented economic and environmental benefits to the society.

Through the long-term Forest Plans, Korea has been successful in greening the country again. In recent years, sustainable development has been the primary theme in managing the natural resources to achieve and maintain the balance and harmony between development and conservation, as emphasized at UNCED and other various international meetings. The implementation of forest conservation, therefore, has been embodied in the Fourth Forest Plan, which has been launched in 1998.

SAUDI ARABIA

Introduction

The Kingdom of Saudi Arabia (KSA) comprises an area of about 2.25 million km^2 located in the Western continental desert belt characterized by its hot and dry climate through the year (particularly in the summer season). As a result, KSA is frequently exposed to drought periods and desertification hazards that result in the degradation of its natural renewable resources.

After the unification of the Kingdom, the Government started early (since the 1960s) to mitigate effects of drought and to combat desertification through conservation and development of its renewable natural resources.

During the period (1960-1990) advanced priority was given to maintenance and development of water resources, soil, forests and rangelands through surveying, evaluation, controlling utilization, implementation of some developmental programmes and application of suitable management approaches. Special attention was given to development and improvement of infrastructures, the education and health situation, institutional framework and capacity-building to support development and conservation of resources.

Strategies adopted to implement Agenda 21 and international conventions

Since UNCED and the outcome of Agenda 21 and other international treaties, KSA started to formulate its strategies and National Action Plans needed to conserve and develop its national environment and to support international efforts to conserve the global environment through the creation and development of the following:

1. The National Strategy for Health and Environment;

2. The Strategy and National Action Programmes to combat desertification on the basis of the 12th section of Agenda 21;

3. The Strategy and the National Action Programmes for the conservation of biodiversity;

4. The National Plan for the management of the coastal habitats;

5. The National Plan for protecting the environment.

For supporting KSA policy to conserve natural renewable resources and the environment, the Royal Decree No.A/90 published in 1992 entrusted KSA Government to protect and restore the environment, as well as to minimize pollution sources. Furthermore, the objectives and the 12 strategic base of KSA seventh five-year plan (2000-2005) stressed the importance of continuing efforts of conservation and development of environment, its ecosystems, natural renewable resources and wildlife through the adoption of the following policies:

1. Development of environment protection systems, restoring its natural habitats and combating desertification;

2. Conservation and development of different types of wildlife in KSA;

3. Achieving the balance between population distribution and environment carrying capacity.

In 1995 the Council of Ministers of KSA approved the report related to the implementation of Agenda 21 which had been prepared by a special national committee. The report included a recommendation to develop integrated national plans for combating desertification and mitigation of drought effects through the following:

1. Supporting data basis and development of information systems concerned to desertification and drought;

2. Control land degradation through conservation of soil and rangelands as well as through rehabilitation of depleted areas;

3. Preparing National Action Programmes for combating desertification to be included in the National Development Plans of KSA;

4. Preparing emergency integrated plans to address effects of drought and other natural disasters.

Implementation of the UNCCD

Saudi Arabia ratified the Convention on 3/7/1997 and acceded 4/7/1997. It is fully committed to implement the provisions of the UNCCD. The Ministry of Agriculture and Water was officially nominated to be the coordinating body at the National and International levels. A National Committee was formed headed by the Ministry of Agriculture and Water including all the relevant government bodies as members for formulating the strategies and the National Action Programmes. The Committee has already formulated the National Strategy for combating desertification and currently started to formulate the present status of desertification and the National Action Programmes.

National Action Programmes:

It has been agreed that the programmes for combating desertification should be integrated with the overall social and economic developmental programmes of the Kingdom, as well as to be in harmony with its general strategic framework of combating desertification, linked and complementing the concerned Regional and Subregional programmes. On the other side all necessary measures were taken to ensure the participation of all government ministries and institutions as well as local communities represented at all levels in formulating and implementing the national action programmes, as well as in proposing priorities through seminars, conferences, workshops, popular and specific meetings and intensive extension programmes.

At the regional and subregional level, there is full coordination with representatives of countries and regional, subregional and international organizations.

Concerning the legal and organizational framework for implementing the UNCCD, all ordinances and regulations concerning the environment at the local level were studied, analysed and utilized in issuing new rules and ordinances or updating previous ones. The most important being the following:

1. The Forests and Range Ordinance;

2. The land distribution and utilization ordinance and regulations;

3. The Ordinance of the conservation and utilization of the live aquatic resources in the National Waters of the Kingdom;

4. The ordinance of water resources conservation;

   (a) The ordinance of the reserved areas. Draft of the proposed ordinance of the National Parks;

   (b) Draft of the proposed ordinance for the environment.

Preparation and Implementation of the National Action Programme (NAP)

Some measures were taken through the framework of the preparation and implementation of the NAP to ensure the effectiveness of the programmes concerning combating desertification and mitigation of the effects of drought and to achieve the objective of improving the economic environment, conservation of natural resources, development and improvement of institutions, providing information concerning desertification, monitoring and evaluation of its effects.

Previous experience gained in the field of development and environmental protection were evaluated and used to avoid weaknesses and the establishment of an information base solely for desertification at the regional and a national levels.

In the former decades a number of activities were undertaken in the field of combating desertification, conservation and development of the renewable natural resources and the mitigation of the effects of drought. The most important activities are the following:

- Protection of 75 sites in the kingdom for the conservation of forests, ranges and wildlife;

- Reforestation of 53 sites;

- Establishment of more than 600 earth dikes for spreading water on rangelands to develop the vegetation cover;

- Sand dune fixation in an area of 4500 ha in the eastern region of the Kingdom;

- Reclamation of extensive agricultural land affected by salinity and water logging;

- Establishment of a number of National Parks which led to the improvement of a number of locations as well as the conservation of the natural habitats and biodiversity;

- Establishment of an information networks for monitoring of climate and resources;

- Execution of some projects for the treatment of sewage water in many towns and used in afforestation;

- Establishment of various research institutions for research in the field of desertification, environment and resource conservation.

In addition to the above, certain measures were taken to build the National capacities and to make use of the recent technologies to combat desertification.

KSA government provides financial allocations in the budget required for implementing the items of the Convention to Combat Desertification. The Kingdom does not receive any financial or technical assistance for implementing the National programmes from anywhere. The Kingdom hopes to receive some technical assistance in some fields after the formulation of the NAP.

The UNCCD profile system for KSA National report has been mentioned under item 10 in The Arabic version.

SINGAPORE

Global warming and climate change, ozone layer depletion, management of hazardous wastes, deforestation and desertification are some major environmental challenges confronting the world today. Recognising that cooperation is needed to address these global challenges, many nations have come together to discuss and explore ways of preserving and protecting the Earth. Numerous international environmental agreements have been made. As a member of the global community, Singapore participates in many of these agreements. We ratified the United Nations Convention to Combat Desertification in December 1998.

Singapore subscribes to the principles of sustainable development. To assist fellow developing countries, our Prime Minister launched the US$3 million STAPSD or "Singapore Technical Assistance Programme for Sustainable Development" for developing countries as Singapore's contribution to the Global Initiative on Sustainable Development at the 19th UNGASS (19th Special Session of the United Nations General Assembly) in June 1997.

Singapore is appreciative of the active involvement of the United Nations in global environmental concerns. The interest and involvement of the United Nations in regional environmental issues is equally important. UNEP's lead role in mobilizing international assistance to Indonesia was instrumental in helping the region deal with the forest fires and smoke haze. Singapore looks forward to the continued support of the United Nations, in particular UNEP, in this area.

While Singapore believes that international cooperation is crucial to achieve a more sustainable future for the world community, we also recognize that every country has to be responsible for the preservation of its own environment. Desertification is not a problem that directly affects Singapore. However, rapid urbanization has subjected our fragile natural ecosystems to severe stress. As our population increases, the pressure for more land accelerates alongside with the increased demand for an attractive and comfortable living environment.

As a small city-state faced with several constraints on our land use, the challenge for Singapore is to create a living and working environment with world class technology and facilities that allow the space for privacy and maintains contact with nature.

MAINTAINING SINGAPORE'S BIODIVERSITY

1. Rapid urbanisation across the globe, particularly in the last 50 years, has had a profound impact on the natural environment, shrinking it at a worrisome rate. Natural ecosystems, which have taken millions of years to evolve, are fragile and their existence are increasingly under threat due to habitat destruction, alteration and the invasion of exotic species. Biological diversity is being lost at a rapidly increasing rate. Indeed, some scientists estimate that human activities cause the extinction of 50 to 100 species of animals and plants a day, compared to a natural extinction rate of 10 species per century.

Singapore's Experience and Challenges

2. Much of Singapore's pristine natural areas disappeared in the early part of this century. Fortunately, however, Singapore still has a rich biodiversity of plants and animals, with species numbers exceeding that of the United Kingdom or Canada. Still, more than 10 per cent of our mammal and bird species have been lost in the last 150 years. Many of our plant species are thankfully not in a state of rapid decline, according to our National Institute of Education scientists who conducted a limited study of the Bukit Timah Nature Reserve.

3. For the proper management of our natural areas, including the native plants and animals they harbour, well-planned scientific studies must be carried out. Singapore's National Parks Board, for instance, coordinated a Nature Reserves Survey to document Singapore's indigenous biodiversity. More of such surveys would have to be done in the future to help take stock of our natural heritage with a view to protecting it.

4. In the face of Singapore's rapid urbanization, special effort is made to preserve and indeed enhance our garden environment - both in respect of our nature areas and also our man-made parks and green spaces. Only then can we truly achieve our goal of making Singapore a most liveable and attractive city. Singapore's "greening" programme started way back in the 1960s and has picked up momentum over the years. The National Parks Board aims to create a pervasive garden environment over the whole island, making Singapore our city within a garden.

5. To overcome the constraints of land scarcity in Singapore, conjuring innovative ways of maximizing land use becomes a constant challenge. One important strategy we have adopted is to incorporate as many compatible uses in our green spaces. Parks, for instance, are increasingly being opened up for other compatible uses, from horticultural planting to venues for staging outdoor concerts. They serve as landscaped areas where Singaporeans can play, relax, learn or simply enjoy being close to nature. Roadside trees are another important component of our greening programme. These ubiquitous roadside trees do a lot more that offer shade and soften the built environment; they also serve as habitats and food for birds, lizards and insects, and reduce air and noise pollution.

6. Singapore's nature areas are especially important, as has been acknowledged in the Singapore Green Plan. These nature areas range from the primary rain forests in our nature reserves to the secondary forests and mangroves in places such as Sungei Buloh Nature Park, a thriving bird sanctuary. These nature areas serve as the protective refuge for our native plants and animals.

7. They are also essential for the crucial ecological life processes that go on even in urbanized settlements, such as the carbon cycle, the nitrogen cycle, the water cycle. These days, they are also being used as "nature labs" to enrich the minds of our younger generation.

8. Small countries like Singapore, however, are inevitably confronted by the dilemma between releasing more land for development or conserving nature areas. Indeed, our experience in recent times has shown that even the provision of basic amenities to make some of these nature sites more accessible to the general public could draw loud protests from some nature-lovers. The Government takes the view that neither development nor conservation is mutually exclusive - it is not a case of having one or the other, period. Rather, it is a case of striking an optimal balance so as to accommodate both these important needs.

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